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CAUSES OF EA-6B CANNIBALIZATIONS

by

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December 1998

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Cannibalization of any system is defined as replacing a defective part or component of one system with an in-use part or component from another system. Cannibalizations are an integral part of high tempo operations where aircraft and weapon systems fail and must be repaired on the spot and immediately deployed. However, there has been an every increasing reliance on cannibalizations in some aviation communities over the past three years. Cannibalizations have several undesirable affects on a system for several reasons. First, they triple the work of maintenance personnel, due to switching parts with another aircraft, in essence impairing an aircraft and repairing both aircraft to complete a single maintenance action. Second, removing parts multiple times between aircraft while conducting cannibalizations reduces the reliability of parts. Third, improper or lack of documentation of cannibalizations underreports the severity of the problem and hides inefficiencies. New innovative practices and techniques to improve the documentation of cannibalizations and reduce the total number of cannibalizations that occur are needed.

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CAUSES OF EA-6B CANNIBALIZATIONS

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Cannibalization of any system is defined as replacing a defective part or component of one system with an in-use part or component from another system. Cannibalizations are an integral part of high tempo operations where aircraft and weapon systems fail and must be repaired on the spot and immediately deployed. However, there has been an every increasing reliance on cannibalizations in some aviation communities over the past three years. Cannibalizations have several undesirable affects on a system for several reasons. First, they triple the work of maintenance personnel, due to switching parts with another aircraft, in essence impairing an aircraft and repairing both aircraft to complete a single maintenance action. Second, removing parts multiple times between aircraft while conducting cannibalizations reduces the reliability of parts. Third, improper or lack of documentation of cannibalizations underreports the severity of the problem and hides inefficiencies. New innovative practices and techniques to improve the documentation of cannibalizations and reduce the total number of cannibalizations that occur are needed.

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I. INTRODUCTION

A. PURPOSE

The Purpose of this thesis is to determine the primary causes that lead to cannibalization of the EA-6B aircraft. According to most maintenance personnel, at the operational, intermediate and depot levels, the cause of cannibalization is the lack of parts in the supply system. However, the lack of parts in the supply pipeline is a symptom of the problem not the root cause. A lack of parts is usually the result of poor logistics support planning (i.e. less than 100 percent funding and purchase of required spare parts), increased usage of the system, or higher than predicted failure rates of parts and components. This thesis determines the root causes of cannibalizations for the EA-6B aircraft, by examining data on cannibalized parts and components and by analyzing the causal factors leading up to today's current cannibalization problem with the EA-6B aircraft.

This thesis also examines current attitudes towards cannibalizations from several perspectives including maintenance personnel at the squadron, Class desk at the

Type Commander, the Supply Support IPT, the wing readiness division, and the Program Manager. My goal is to discover different for the Navy to improve supportability of the EA-6B aircraft and to improve documentation of cannibalizations. Better documentation will bring to light the scope of the problems with cannibalizations. This along with improved logistics support will reduce cannibalizations.

B. BACKGROUND

1. Cannibalization

Cannibalization in Naval Aviation refers to the physical removal of serviceable parts or components from one aircraft for installation on another aircraft. Cannibalizations are often performed in preparation of and during high-tempo operations, scheduled training missions where aircraft and weapon systems must be repaired on the spot and immediately deployed. Cannibalizations also occur to get as many aircraft to full mission capable status, which improves the readiness of the organization. In the aviation world, the urgency to meet operational commitments is frequently the determining factor to cannibalize.

Cannibalizations cause dramatic reductions in system maintainability and inherent reliability because unnecessary maintenance is being performed on aircraft, which can result in increased damage to components, increased probability of errors, and higher opportunity cost in maintenance labor hours. There is a lack of documentation on the parts being swapped and the number of hours that part has been in service. This results in increased failure rates and unreliability of the system. However, there has been an every increasing reliance on cannibalizations in several aviation communities over the past three years. I will present data that will show the increased reliance on cannibalizations and discuss the difficulties that exist in properly documenting cannibalizations.

The EA-6B community relies heavily on cannibalization to accomplish its assigned mission and to maintain the required operational availability of its aircraft. Cannibalization actions are becoming the first solution to repairing an aircraft instead of the last resort. Cannibalizations have increased at all levels of repair and maintenance for the EA-6B Prowler, causing the manager of the program to take a closer look at cannibalizations.

2. EA-6B Aircraft Yesterday and Today

The EA-6B Prowler is a radar-jamming attack aircraft that was specifically designed and built for tactical electronic warfare. The Prowler, a derivative of the two-place A-6 Intruder, was lengthened to accommodate a four-place cockpit. The EA-6B replaced the A-3 Skywarrior. The EA-6A (the predecessor of the EA-6B) was first designed in 1966. The first EA-6B was fielded in 1971 and the last one produced was 1991. The established operational life of the aircraft was 20 years, and has since been extended until 2015.

There are 124 EA-6B aircraft operating in today's Navy and Marine Corps. There are 20 EA-6B squadrons. The average EA-6B squadron has four aircraft. The RAG training squadrons have three aircraft as of August 1998. There are approximately 40 EA-6Bs in Standard Depot Level Maintenance (SDLM) at Naval Aviation Depot (NADEP) Jacksonville, FL. The Marine Corps has four squadrons for a total of 17 aircraft located at Cherry Point, NC. The Naval Reserves have one squadron of four aircraft located at Andrews Air Force Base. The EA-6B also assumed the Airforce's mission after the retirement of the EF-111. This has greatly increased the mission requirements on an aging airframe.

NADEP Jacksonville overseas in-service engineering, logistics support, modification support, SDLM, conversions, and technical bulletins for the EA-6B aircraft. The level I and level II IPT leaders for logistic support are also located in Jacksonville. The Program Manager, the Deputy Program Manager, and the Assistant Program Managers for Logistics, Systems Engineering, Avionics Program Office, Business/Financial, Training systems, Program Integration, Contracts, Legal, and Structure and Flying Qualities are located at the Naval Air Systems Command (NAVAIR).

As expected with the aging of any system, reliability of parts has decreased, failures and maintenance costs have increased, and availability of critical parts is extremely low. The low availability of parts has resulted in an increased level of cannibalizations.

C. RESEARCH QUESTIONS

The primary research question this thesis is:

What are the root causes of cannibalizations for the EA-6B aircraft?

Secondary research questions include:

Has the actual number of cannibalizations increased over the past three years or is the increase the result of better documentation?

What Impact does cannibalizations have on squadron or Type class readiness?

What are the consequences faced by maintenance personnel and Commanding Officers if cannibalization practices are abandoned?

What techniques and incentives can be introduced to improve supportability of the EA-6B aircraft?

What can the Navy do to improve documentation of cannibalizations?

How can the Navy improve logistics support to minimize the need for cannibalization?

D. SCOPE, LIMITATIONS AND METHODOLOGY

This thesis presents eight years of general data and three years of specific data. The main focus of this study however, will be on the past three years, to determine root causes of cannibalization of the EA-6B. I specifically reviewed data on parts and components that had the highest rates of cannibalizations. Currently maintenance personnel at the depot are cannibalizing nose and main landing gear and flight control surfaces at a very high rate. I will determine if there really is a lack of spare parts in the supply system. If so, is it a problem caused by a poor Post Production Support Plan, a higher increase in the number of aircraft requiring depot maintenance, or is previous parts demand too low for industry to maintain a sufficient number of spares? Or is the problem insufficient funding for the program.

This thesis focuses on a small cross section of parts to determine the cause, and then apply the results of the analysis to the remaining parts and components of the EA-6B. The software used in this thesis is Microsoft office version '97.

The Methodology used in this research consisted of a literature review of previous thesis on the topic of

cannibalizations, briefs from the Program Managers Logistics Support IPT, and a review of instructions and other guidelines on readiness and cannibalization. Concepts were borrowed from books that cover the topic of logistics support for acquisition systems, DoD acquisition instructions, and from DoD Acquisition Deskbook.

The author reviewed the data from the Aviation Maintenance Readiness Reports (AMRR), Aviation Support Management Reports (ASMR), Naval Aviation Logistics Data Analysis (NALDA) reports, and NALCOMIS. Commander, Naval Aviation Pacific Fleet (COMNAVAIRPAC) Analysis Division provided data extracted from NALDA on cannibalization per 100 flight hours by quarter, and other data and correspondence on cannibalization. The Program Managers Supply Support IPT provided data on parts status and problems with EA-6Bs going through SDLM, and Block 82 to 89 modification. COMVAQWINGPAC provided a list of parts cannibalized for operational and deployed aircraft in fiscal year 1998,

This thesis presents NALDA data obtained from COMNAVAIRPAC, COMVAQWINGPAC, and the EA-6B Supply Support IPT from Jacksonville FL on EA-6B cannibalizations and parts degraders. Significant points from the data are presented, and an analysis is conducted. The analysis is based on the

information I have received through telephone and personal interviews, documents that I have read discussing the cannibalization problem, and the concepts that I have learned from various classes on providing proper logistic support for the entire life cycle of a system. This analysis provides the reader better insight into the actual problem.

The interviews conducted were both telephone and face to face interviews with the COMNAVAIRPAC's Class Desk and Analysis Division personnel, the Program Manager's Supply Support IPT Leader, COMVAQWINGPAC's maintenance personnel, and Logisticians at Naval Inventory Control Point, and Defense Logistics Agency. I incorporated the thoughts and ideas from the personnel who perform maintenance and provide support to the aircraft, with the Logistics Engineering, and Strategic Logistics concepts to develop solutions to increase the documentation of cannibalization, reduce the total number of cannibalizations, and improve the supportability of the EA-6B.

II. FACTORS LEADING UP TO MAINTAINABILITY PROBLEMS

A. PROBLEMS IN THE EA-6B COMMUNITY

Denise Machala, the Supply Support Integrated Product Team Leader for the EA-6B program stated, " *The EA-6B community of 124 aircraft has been surviving on cannibalizations for the past two years*". According to Ms. Machala, the EA-6B has used a high number of parts from retired A-6E airframes. Parts and components from aircraft newly inducted into the depot for Standard Depot Level Maintenance (SDLM) and block 89 modifications are also being robbed to get aircraft near the completion of SDLM fully operational to return to the fleet.

The components most commonly cannibalized parts are the flight control surfaces (i.e. slats, flaps, rudders, nose radomes) and landing gear. As previously stated in chapter one, the lack of spare parts is a symptom of a systemic problem that has lead to the high rate of cannibalizations. Through my research, I have found several possible root causes that created today's situation with EA-6B parts and components shortages.

Those possible causes are as follows. (1) The last EA-6B produced by Grumman was delivered to the Navy in July

1991. However, the Postproduction Support Plan was not developed until 1992. (2) The demand on the aircraft has increased due to the service life being extended until 2015, and the EA-6B assumed the Airforce's mission for the EF-111, which was retired in 1996. (3) The closure of NADEP Alameda and Norfolk greatly increased the workload of NADEP Jacksonville. This, coupled with the poor turnover from Alameda and Norfolk NADEPS to Jacksonville, severely backlogged depot maintenance in fiscal year 1995. (4) The Aircraft Service Period Adjustment (ASPA) program delayed the number of aircraft inducted into SDLM for scheduled maintenance from 1983, the beginning of this program, until the present. (5) 30 to 50 percent of the cannibalizations in the fleet are for convenience. The parts are in the system, but the maintenance personnel decide that it is easier or faster to pull the needed parts or components from another aircraft.

We will now discuss each point and show how these actions adversely impacted the EA-6B program and helped to create the cannibalization problem the program is experiencing today.

B. LACK OF POST PRODUCTION SUPPORT PLAN

Grumman Aerospace corporation delivered the last EA-6B to the Navy on July 29, 1991. In accordance with DoD 5000.2-R (Mandatory Procedures for Major Defense Acquisition Programs) part 7 and MIL-STD-1388-1, the Postproduction Support (PPS) plan should be mature by milestone III in the acquisition cycle and completed by the end of production. The Assistant Program Manager of Logistics is responsible for the PPS plan as well as all logistic support. According to RADM (ret.) Donald Eaton, the Material Logistics Academic Associate Advisor at the Naval Postgraduate School, Monterey CA, the PPS plan for the EA-6B was not developed until 1992, one year after production ended.

This is an important point, because the PPS plan is a vital element in overall integrated logistics support. It ensures continued readiness and proper logistics support throughout the life of the program, with a focus on continued support after production. MIL-STD-1388-1 constitutes the basic standard for Logistic Support Analysis (LSA). The LSA is an analytical process by which the Logistics Support necessary for a product is defined. Included in the LSA are requirements for supply support, maintenance planning, test and support equipment,

transportation and handling, personnel and training, facilities, data, and software. The LSA is developed by the contractor and encompasses 15 specific tasks. One of the 15 tasks is constructing the PPS plan. The PPS plan is developed using support requirements and concepts that are the result of the PPS analysis, which is task 403 of the LSA. Elements of the PPS plan include:

- Designating engineering authority
- Determining sparing levels of parts
- Determining the depot that will be the center for post production support
- Determining repair parts needed throughout the life of the program
- Determining level of responsibility for maintenance and technical support
- Establishing requirements for a smart shutdown
- Maintaining a knowledge base (artisans, data, tooling)
- Determining facility requirements

All the above aspects should be considered prior to shutting down the production line of an aircraft. Failure to do so can result in: a shortage of parts with no contract in place to procure needed parts and components, high cost to DoD to modify antiquated equipment with new technology,

untimely and costly aircraft maintenance, inadequate support equipment and facilities, and funding shortfalls in the out-years.

Program management officials of the EA-6B (which include the contractor) did not develop contingencies for possible future problems. In-depth re-engineering near the end of the aircraft's original life cycle, production restart for piece parts and components, extension of the aircraft service life, changes in the depot level support facilities, or the buy-out of the prime contractor should have been planned for. All of the aforementioned events occurred with the EA-6B program. Not having a PPS plan in place compounded the problems.

C. EXTENDING OPERATIONAL LIFE AND INCREASED MISSION

In 1996, the Airforce retired the EF-111. It was decided that the EA-6B would assume a joint role and the mission of the EF-111. According to Ms. Machala the EA-6B program received additional funding for upgrades to bring an additional 24 aircraft into active service, but did not receive funding for the increased maintenance resulting from additional flying requirements. Prior to assuming the joint

role, the Primary Aircraft Availability (PAA) was 80 aircraft. This means that 80 out of the 124 aircraft must be fully operational to meet mission requirements. The increase in mission scope resulted in an increase of the PAA from 80 to 104 aircraft in 1996.

This additional requirement put an already backlogged NADEP Jacksonville, further behind the power curve since it had not stabilized from the additional workload brought about by the closures of NADEPs Alameda and Norfolk. As of 31 August 1998 only 84 of the 124 aircraft were operational. This is considerably short of the 104 aircraft required to meet current PAA.

Figure 1.1 is the August 31, 1998 Aircraft Configuration and Location Chart for the EA-6B. The chart lists aircraft by identification number and by where they are assigned. This chart shows 84 aircraft assigned to the fleet and 40 aircraft located in Jacksonville undergoing various levels of maintenance and modifications. 45 aircraft have been stricken because they were prototypes and test platforms during the development of the aircraft.

Due to the increased mission requirements and the reality that no other aircraft in DoD's inventory has the capability of the EA-6B, the aircraft's operational service

FLEET										DEPOT							
NAVY								USMC		SDLM			STORED		STRICKEN		
VAQ-128		VAQ-132		VAQ-138		PAX RIVER		VMAQ-1		JAX			JAX		001	038	090
160609	066	161881	104	158815	045	158805	035	158030	007	163404*	144	09/98	158540	018	002	039	095
161884	107	162224	110	163525*	152	160434#	062	160786	073	163048	133	09/98	158544	022	003	042	099
162228	114	162934	117			163892*	167	161882	105	158034	011	10/98			005	043	100
163046	131	163047	132			164403*	170	163031	124	163402*	142	12/98			008	044	101
										162230	116	01/99			014	047	109
VAQ-129		VAQ-133		VAQ-139		NWC CHINA LK		VMAQ-2		163398*	138	02/99			015	048	111
158040	017	161883	106	161352*	096	VX-9		158032	009	163395*	135	02/99			019	057	112
158650	027	161885	108	163530*	157	156481#	004	158036	013	161120*	084	06/99			021	063	115
158801	031	163033	126	163886*	161	160433*	061	160436	064	163521*	148	04/99			023	067	120
158810	040	163034	127	163888*	163	163406#	146	161245	088	161115*	079	05/99	158542	020	024	068	129
159585	051									163049*	134	TBD	(CWS REMVD)		025	071	145
159911*	058	VAQ-134		VAQ-140				VMAQ-3		NGSA			NGSA		028	076	158
160709	072	158804	034	163522*	149			158035	012	163520*	147	09/98	158811	041	029	077	
161774*	097	160787	074	164402*	169			159584	050	163401*	141	10/98	159587	053	033	081	
162939	122							160432	060	163396*	136	12/98	159908	055	036	089	
								161348	092	163403*	143	01/99	160706	069			
								161349	093	163399*	139	02/99					
										161244*	087	03/99					
		VAQ-135		VAQ-141				VMAQ-4		163523*	150	04/99					
		158816*	046	159583	049			158802	032	158649*	026	05/99	159909#	056			
		163527*	154	161350*	094			160437	065	163397*	137	05/99	(V/V)				
		163528*	155	163526*	153			161779	102	163400*	140	06/99			TOTAL = 45		
		163889*	164	163887*	162			163045	130	82 TO 89 MOD			(AND)		AIRCRAFT		
										163035	128	12/98	SDLM/CWS		ICAP-2		
VAQ-130		VAQ-136		VAQ-142		MISCELANEOUS/NOTES:				162935	118	01/99	SDLM/CWS		BLK 89A #		4
160791*	078	158039*	016	159912	059					158033	010	01/99	SDLM				
161116*	080	161242*	085	162936	119					163030	123	02/99	SDLM/CWS		BLK 89 *		54
163884*	159	163529*	156	162938	121					159586	052	02/99	SDLM				
163885*	160	163890*	165	163032	125					160707	070	03/99	SDLM/CWS		BLK 82		26
		163891*	166							162227	113	04/99	SDLM/CWS		(99-133)		
		164401*	168			SHADOWS ON THE RAMP = 81				161880	103	05/99	SDLM/CWS				
VAQ-131		VAQ-137		VAQ-209 (RES)		(DOES NOT INCL 89A V/V ACFT)				160788	075	05/99	SDLM/CWS		BLK 82		40
161243*	086	161119*	083	158029*	006					158800	030	07/99	SDLM/CWS		MOD		
163524*	151	161347*	091	161118*	082					158807	037	07/99	SDLM/CWS				
				161775*	98	Accurate as of 31 Aug 98				159907	54	36373	SDLM/CWS		TOTAL		124

Figure 1.1 Aircraft Configuration/Location Chart

life has been extended until 2015. This extension of service life and increase in PAA has caused logistic support to lag behind. The service life extension also brought along with it a new problem, tired iron. Tired iron occurs when the metal flight control surfaces and wings are stressed during normal operations for many years. The surface components become extremely weak, and the honeycomb structures inside the aircraft wing begin to breakdown.

The Navy supply system is currently playing catch-up; to provide needed parts to the EA-6B program. Key players in the supply system are Naval Inventory control Point (NAVICP) and Defense Logistics Agency (DLA). NAVICP is responsible for provisioning components and managing end items (components) for the EA-6B. NAVICP also determines the SDLM induction rate of the aircraft based on predicted maintenance demand requirements and projected funding levels. DLA is responsible for managing piece parts to support the end items and also manages consumable supplies for the aircraft. NAVICP, DLA and NAVAIR are finally working together to correct the current parts shortage problem. This situation may have been avoided, or at least the severity of the situation reduced, if a PPS plan had been established and the supply system had been involved from the beginning.

Although early supply integration and an effective PPS plan would not have changed the need to extend the program, contingency plans could have been developed to evaluate the probability of extending the program for an additional 10 - 20 years prior to the end of production. Also plans to conduct a smart shutdown of the production line and make modifications to the aircraft with new technology could have enabled the acquisition community and the supply system to react faster to the changing requirements. The cost to DoD to fund the restart of parts production and to refurbish older aircraft would have been much less.

D. CLOSURE OF NADEPS ALAMEDA AND NORFOLK

During the 1994 BRAC hearings, which were conducted to reduce the Navy's infrastructure, the Naval Depots were one of the prime targets for reductions. NADEP Alameda and Norfolk were selected along with NADEP Pensacola for decommissioning to reduce the number of NADEPs from six to three. Of the three remaining NADEPs located in Cherry Point NC, Jacksonville FL, and San Diego CA, NADEP Jacksonville was selected as the repair depot for the EA-6B.

Once it was determined that Jacksonville would inherit all depot level maintenance for the aircraft, a plan was

developed to ensure a seamless transfer of functions from the closing Alameda and Norfolk NADEPs to the gaining Jacksonville. The plan consisted of a face to face turnover between functional positions between each NADEP. The plan also included an orderly identification of aircraft parts and components, documentation of incomplete maintenance actions, current sparing levels of parts and components, and a gradual shutdown of the closing activity coupled with an immediate startup of maintenance for the gaining activity.

Unfortunately, this transition was not executed as planned. Once Alameda and Norfolk NADEPs were designated for BRAC closure, NADEP personnel began their departure sooner than anticipated. This early exodus not only caused management to scrap the plan of an orderly and seamless transfer of functions from Alameda and Norfolk, but also caused a backlog of 1995 scheduled maintenance. The transition took more than two years to complete. One example was the transfer of landing gear components, which started in 1995 and was not completed until 1997.

One reason for the backlog was that NADEP Jacksonville required new tooling to have the capability to perform the proper maintenance on the EA-6B. New tooling was not purchased and installed prior to Jacksonville assuming responsibility for maintenance of the aircraft. Second,

there were incomplete specifications of maintenance and repairs that were to be performed for each aircraft. Existing work processes and operations established at the NADEPs were based on repair manuals received from the contractor.

However, the technical manuals did not fully address the severely degraded material condition of the landing gear and some of the flight control surfaces. Therefore, the nonstandard processes required supplemental specifications in the form of a local Temporary Engineering Instruction (TEI). The local TEI had to be developed for Jacksonville, which also delayed the startup of EA-6B maintenance and added to the backlog. This increased the average time for an aircraft to complete SDLM from nine months to 13 months.

Storage was also an unforeseen nightmare, because the Navy had parts and components pouring from Alameda and Norfolk into the limited storage facilities managed by NADEP Jacksonville and DLA. Not only were there EA-6B spare parts, but there were many cannibalized parts from the retired A6-Es (mainly flight control surfaces and wings) going to NADEP Jacksonville. The result of failing to identify storage problems early resulted in many aircraft components critical to the EA-6B being stored outside with no protection from the weather.

Many of the components were in some type of container mostly wooden crates. Unfortunately most of the crates were in extremely poor condition, e.g., crushed with sections missing, or extremely water logged. Solid crates containing heavy component were stacked on top of partial crates, many saturated by the rain, which added weight to the partial container. In many cases, the components were crushed or extremely damaged, requiring a large expenditure of man-hours to restore.

This storage problem was not fully discovered until June 1997, which meant that some parts had been sitting out exposed to the elements for over a year. Literally, hundreds of EA-6B aircraft components, many with a high fleet demand, were being permanently stored outside of a storage facility.

Appendix A contains an excerpt from an evaluation conducted by the Supply Support IPT of the FE components that were discovered in open storage in June 1997. This document was submitted to NAVAIR and NAVICP in the form of an NADEP Jacksonville Vision Employee idea titled *"Summary of On-site Evaluation of EA-6B Components"*.

Each component was identified by the part number provided on the identification plate, serial number (when available), material condition, and packaging condition. A large number of the components evaluated were misidentified. In most of these cases, the National Stock Numbers on the packages did not correspond to the part numbers of the component inside. When shipping documentation was available, it was found that the item had been turned into supply as a higher-grade configuration.

For example, a flap with a part number of 128CS10006-5 would be identified on the crate and shipping documentation as a 128CS10006-7 flap, the latter of which would have modifications that would make that component a more desirable asset to receive in exchange for the older configuration. This problem was observed on most components with newer configurations in supply. Many of the misidentified horizontal stabilizers were found to be of an obsolete configuration.

The majority of the components were given a material-condition classification of either Category 3 or Category 4. Very few were identified as Category 1. Some of those found to be in a Category 1 material condition were originally A-condition items that had been

erroneously identified as F-condition assets (material is generally un-repairable or the repair effort is greater than the replacement cost). However, the material condition of these had deteriorated due to exposure to weather and could no longer be considered Ready for Issue (RFI) assets. Components for which there were very few assets in existence were categorized as 3's even though a re-manufacturing effort would be required to restore the component to an RFI condition. All obsolete components were designated as Category 4's.

In summary, the decision to close Norfolk and Alameda and relocation all EA-6B depot maintenance to Jacksonville, FL and close NADEP Norfolk was a congressional political decision. In 1993 the year preceding the BRAC hearings, NADEP Norfolk was rated as the most efficient NADEP. The transition to NADEP Jacksonville was not thoroughly planned out and was not properly executed, thus causing the severe problems described above. A lot of time, money and valuable resources were wasted due to poor planning and implementation of this strategy. This event was a main contributor if not the primary culprit to the problems the EA-6B program is having today.

D. EFFECTS OF THE ASPA PROGRAM

In an effort to reduce the cost of SDLM per aircraft, the Navy initiated a new depot induction policy in 1983. This new policy was the Aircraft Service Period Adjustment (ASPA) program developed by the Naval Aviation Logistics Center (NALC) at Patuxent River, Maryland. The ASPA program developed a process to inspect aircraft prior to induction into regularly scheduled SDLM. The ASPA inspection would determine if it were necessary to induct an aircraft into SDLM.

In 1982, the NALC observed that many of the aircraft being inducted into the depots for SDLM were new aircraft that had limited wear. Many of these aircraft were newly delivered to the Navy, and reflected limited use. Aircraft in a high operational tempo wear faster than aircraft that are going through test and evaluation. Therefore, NALC believed some of the maintenance and component replacements performed on these aircraft were unnecessary.

The ASPA process started with an inspection scheduled at the end of the aircraft's Operating Service Period (OSP). The inspection would determine whether an airplane could be extended for one year or should be inducted into the depot as scheduled. The squadrons would prepare the plane and

NADEP personnel would conduct the inspection and determine if the aircraft was a candidate for being waived from induction into the depot. The ASPA program was approved in 1983 by NAVAIR. In that year, depot inductions were reduced from 720 to 420 airplanes and achieved a one-time savings of $300 million Navy wide as reported by the Navy Material Command.

In the long run, the ASPA program had several adverse effects on EA-6B program. First, it made it difficult for the NADEPs to properly plan work for depot personnel because fewer aircraft were inducted than were scheduled. Second, lack of regularly scheduled maintenance falsely reduced the demand for parts from the supply system resulting in inadequate stocking levels of spare parts. Third, it was not uncommon to extend an aircraft for three to five years, increasing the number of problems each airplane had when they arrived to the NADEP. This introduced randomness to the process. Fourth, as a result of delay inductions incipient failures areas were undetected which lead to major degradation of components (i.e. landing gear problems not discovered until failures occurred during operations. Fifth, ASAP lengthened the amount of time required for an aircraft to complete SDLM, because the depot had to inspect the aircraft to identify problems before they could order

the needed parts. The problems one aircraft had were different from the next aircraft that was inducted. With the ASPA program, Standard Depot Level Maintenance was no longer standard. Long lead times were required to procure needed parts to complete maintenance on aircraft. This resulted in depots cannibalizing new inductees to get aircraft near the completion of SDLM back out to the fleet.

The bottom line is that the ASPA program did realize a $300 million saving in 1983 for the reduction the number of aircraft going through SDLM by 300 aircraft with an average SDLM cost of one million dollars each. ASPA started a vicious cycle that reduced the stocking level of spare parts due to low demand data, and increased the reliance of cannibalizations to get fully operational aircraft to the fleet.

E. CANNIBALIZING FOR CONVENIENCE

According to Commander Michael Hardee, the Aircraft Programs and Policy Officer for COMNAVAIRPAC, 50 percent of fleet cannibalizations are performed for convenience. Half of the time, parts are in stock at the local Fleet Industrial Supply Center or onboard the carrier. When maintenance personnel are under great pressure to get an

aircraft ready for launch, it takes too long to go through the established channels to obtain the part or component. Also cannibalization does not occur the same way every time. Therefore, it is quite difficult to detect and is often underreported.

Below are two examples of how cannibalizations can occur. The first example is a by-the-book step-by-step cannibalization process, which is outlined in OPNAV Instruction 4790.2G. The second example demonstrates how fleet cannibalizations really occur (not by the book). Both examples will show why maintenance personnel rely on cannibalizing rather than going through established supply channels, and why it is difficult to fully document.

Scenario One: There are two aircraft. Aircraft 105 is in the hanger awaiting parts (not mission capable) and aircraft 107 is scheduled for the next launch. Aircraft 107 goes down for system failure, and a Maintenance Action Form (MAF) is initiated by the maintenance personnel (this form must be initiated prior to any work occurring to an aircraft, according to current regulations). The work center trouble-shoots the system, discovers the faulty component and places the component on order. Maintenance Control verifies the component with the Material Control division and performs a stock check via NALCOMIS. Material

Control notifies Maintenance Control that the part is not in stock (NIS). Maintenance Control approves the cannibalization of the component from aircraft 105. The cannibalization of the component is initiated with a cannibalization MAF (a separate MAF is required for all cannibalizations). NALCOMIS assigns code 814 to process and document the swap of the component. The work center removes the component from aircraft 105, and then installs it onto aircraft 107. The original MAF for aircraft 107 is signed off and closed out. The second MAF remains open for aircraft 105 to receive the component originally ordered for aircraft 107.

Scenario Two: Aircraft 107 is on next go for launch. Aircraft 107 goes down for a system failure. The work center finds the faulty component. Aircraft 105 is parked next to 107 with a good component and it is not scheduled to fly. The component is cannibalized from 105 and placed in 107. Aircraft 107 checked well, and is launched. The work center calls Maintenance Control to report the repair to 107 and the cannibalization of a component from aircraft 105. At this time, there has been no documentation of maintenance on either aircraft. Maintenance Control generates and signs off the system malfunction MAF for aircraft 107. When time permits, Maintenance Control orders a component under a

separate MAF for aircraft 105. Cannibalization of the component has occurred but is never documented.

Several other versions similar to this can occur where parts are pulled off the hanger aircraft the day prior to a launch just in case an aircraft goes down, or parts that arrive for a hanger aircraft are diverted to aircraft scheduled for a launch. Often these actions are never reported as a cannibalization. Urgency to launch an aircraft that may be minutes behind its original launch time drives cannibalization. It is difficult to document all cannibalizations because a separate MAF is required for a cannibalization action, which doubles the administrative load of maintenance personnel for a single maintenance action. Maintenance personnel rarely have enough time to complete repairs for aircraft to make scheduled launches, therefore reducing the probability of completing documentation for cannibalizations.

This why AIRPAC's Policy Analysis Division believes 50 percent of the fleet cannibalizations are for convenience, and that less than half of the actual fleet cannibalizations are documented. CDR Hardee stated that one Maintenance Control Officer ordered over 700 cannibalization actions in one deployment. However, less than 250 cannibalizations were actually documented.

The operational tempo demands immediate fixes to problems that impede timely launch and using the proper channels reduces timeliness. One of the ways Carrier and Squadron Commanding Officers are graded for effectiveness of command is by the completion rates of scheduled sorties for the day. Frequent misses of scheduled launches can negatively affect the command and draw unwanted scrutiny from Group Commanders of carrier flight operations and operational maintenance procedures.

III. ANALYSIS OF EA-6B CANNIBALIZATION DATA

A. CANNIBALIZATIONS PER 100 FLIGHT HOURS NAVY WIDE

Cannibalizations are usually measured in one of two ways: the number of cannibalizations per 100 flight hours, and the total number of items cannibalized in a specified period of time (i.e. cannibalizations per month, quarter or year).

Table 3.1 was obtained from COMNAVAIRPAC's Analysis Division covering a period from 1990 to 1998 for all aircraft Navy wide. This data contains cannibalizations per 100 flight hours. The 1998 statistics show first through the third quarter data only (fourth quarter data was not available).

In examining the data, it is clear that the number of reported cannibalizations for naval aviation decreased from 1990 - 1995 from 10.4 to 8.4, the lowest levels in over 15 years according to COMNAVAIRPAC's Plans and Policies Officer. For example, every 100 hours that an aircraft is operating, 8.4 cannibalizations occur on average.

Cannibalizations Per 100 Flight Hours Navy Wide

TOTAL FORCE	ALL	10.4	10.4	10.2	9.8	9.6	8.4	8.4	9.1	9.4
DEPLOYED FORCE	ALL	8.5	9.1	9.4	10.8	11.3	8.2	8.7	11.5	9.9
READINESS FORCE	ALL	12.8	14.3	14.2	12.4	11.2	10.2	11.1	10.5	10.5
NON-DEPLOYED FORCE	ALL	11.4	12.4	11.2	10.2	9.6	9.2	9.2	9.7	10.7

Cannibalizations Per 100 Flight Hours Per Type Model Series

TOTAL FORCE	C-2	11.6	10.5	11.4	13.1	14.3	13.0	12.1	13.7	7.8
TOTAL FORCE	E-2	15.0	17.8	19.1	20.0	16.2	17.7	14.4	17.9	17.7
TOTAL FORCE	EA-6B	18.1	17.8	14.6	15.3	14.1	11.7	14.3	12.8	14.6
TOTAL FORCE	F-14	25.7	23.5	27.2	26.7	27.0	18.7	16.0	19.7	16.6
TOTAL FORCE	FA-18	10.1	9.3	9.0	8.9	9.5	9.1	10.1	9.7	8.7
TOTAL FORCE	H-53	12.0	13.9	11.3	8.8	8.3	7.6	7.9	6.9	9.0
TOTAL FORCE	H-60	5.2	6.6	7.2	7.2	7.4	7.0	6.3	6.0	6.4
TOTAL FORCE	P-3	8.7	8.5	8.7	8.6	9.2	8.9	10.1	10.2	10.8
TOTAL FORCE	S-3	31.1	32.0	29.1	27.4	20.5	19.3	18.2	24.2	27.9

Source: NAMSO 4790-17049-01 DTD 210798

Table 3.1 Cannibalizations Per 100 Flight Hours

From fiscal year 1996 through 1998 cannibalizations per 100 flight hours appears to have a slight ascending trend, from 8.4 cannibalizations per 100 flight hours in 1996 to 9.4 in 1998. Although cannibalizations are still at a relatively low level, some type model series such as the S-3, E-2, F-14 and EA-6B are far above the 9.4 average. Does this trend state that cannibalizations are increasing? Or, could the increase show that documentation on reporting cannibalizations has improved and there is no real increase? To obtain a more accurate assessment of this change in trend, we must take a more in-depth look at the cannibalization data and compare it to other data, i.e. degrader listings, supply shortages, etc.

B. EA-6B CANNIBALIZATIONS PER 100 FLIGHT HOURS

Table 3.2 is a NAMSO report extracted from NALDA on EA-6B data from 1990 - 1998. Not only do we have the total force averages, we have cannibalization data broken down into deployed, readiness, and CONUS figures. The data reveals that the average number of cannibalizations per 100 flight hours for the EA-6B has remained relatively stable

COMMAND	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98
TOTAL FORCE	18.1	17.8	14.6	15.3	14.1	11.7	14.3	12.8	14.6
DEPLOYED FORCE	15.0	14.2	12.8	16.2	21.8	11.0	13.1	16.6	15.1
READINESS FORCE	18.0	24.1	12.9	13.7	13.8	11.5	12.1	6.0	10.2
NON-DEPLOYED FORCE	15.6	18.4	14.4	13.7	11.6	10.4	13.1	11.1	13.9

Source: NAMSO 4790-17049-01 DTD 210798

Table 3.2 EA-6B Cannibalizations Per 100 Flight Hours from 1990 - 1998

over the past six years, averaging 13.9 cannibalizations per 100 flight hours. Compared to the other model series, EA-6B currently has one of the highest cannibalization rates in the Navy. Its rate of 14.6 cannibalizations per 100 flight hours, is fourth behind the S-3 at 27.9 cannibalizations, E-2 at 17.7 cannibalizations, and F-14 at 16.6 cannibalizations per 100 flight hours.

Based on discussions with the Supply Support IPT Leader, cannibalizations have been increasing because some of the assets are over 20 years old. As systems approach the end of their effective lives, failure rates increase, and parts become less available. Later in this chapter, I will compare a list of cannibalized parts provided by COMVAQWINGPAC and NADEP Jacksonville to a list of degraders

and parts shortages provided by COMNAVAIRPAC. This comparison will determine how closely correlated cannibalized items are to parts shortages. Figure 1 is data extracted from NALDA by COMNAVAIRPAC's Analysis Division on EA-6B cannibalizations per 100 flight hours per quarter. These statistics are from fourth quarter fiscal year 1995 to third quarter fiscal year 1998. Since second quarter fiscal year 1997, LANT fleet cannibalization averages have been consistently higher than PAC fleet averages. This difference could be explained by the fact that COMNAVAIRPAC and COMVAQWINGPAC manage over 80 percent of EA-6B assets, and 20 percent of EA-6B aircraft are managed by COMNAVAIRLANT. Therefore, the program has greater importance to COMNAVAIRPAC, and would mostly receive better oversight in the areas of material support and maintenance.

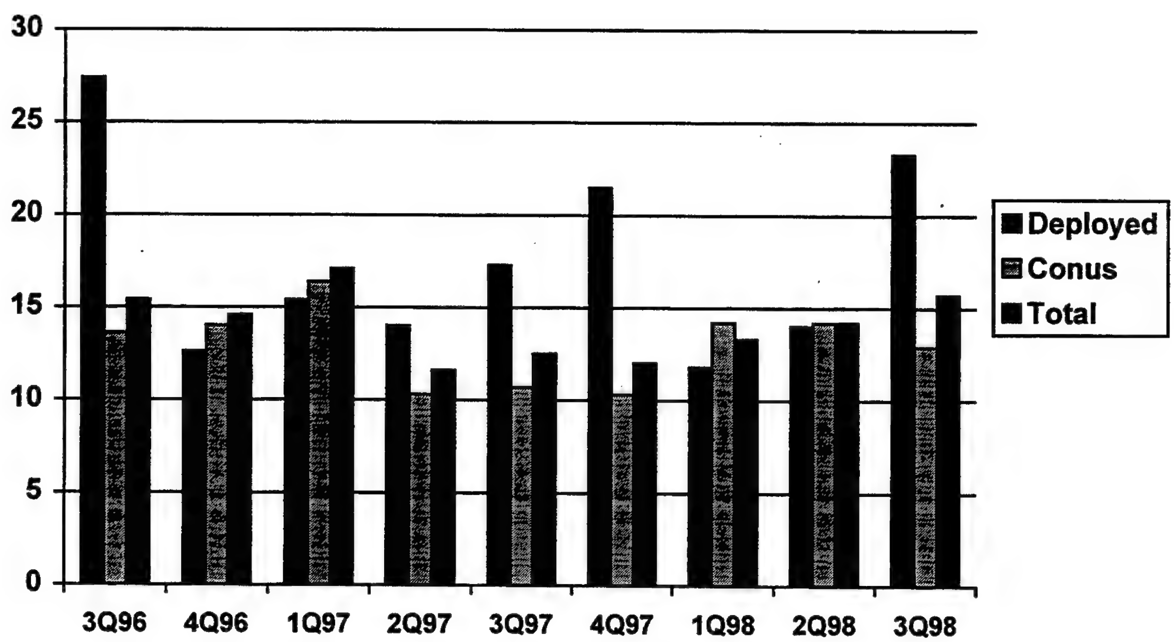
Figure 3.1 provides a better picture of the data presented in Table 3.2. The chart displays cannibalizations per 100 flight hours, per aircraft for deployed, CONUS, and total EA-6B assets from third quarter fiscal year 1996 to 3rd quarter fiscal year 1998. The data shows that for total aircraft, the average number of cannibalizations has remained relatively constant with an average of 14

TOTAL FORCE	10.3	13.2	14.4	15.4	14.6	17.1	11.6	12.5	12.0	13.3	14.7	15.7
DEPLOYED FORCE	6.4	12.2	13.1	27.4	12.6	15.4	14.0	17.3	21.5	11.8	13.8	23.3
READINESS FORCE	14.3	15.1	11.0	12.1	9.9	*****	6.3	5.9	5.8	7.5	13.3	9.4
NON-DEPLOYED FORCE	11.0	11.9	13.3	13.6	14.0	16.4	10.3	10.7	10.3	14.2	14.7	12.9
LANT FLEET	7.7	7.9	13.3	12.5	23.9	12.0	16.3	12.9	15.9	13.3	18.9	27.6
LANT FLEET DEPLOYED	9.2	5.3	5.6	*****	*****	8.2	*****	*****	5.6	11.5	18.9	37.6
LANT FLEET READINESS	****	*****	****	*****	*****	*****	*****	*****	****	*****	****	****
LANT FLEET NON-DEPLOYED	6.5	8.8	14.4	11.6	23.7	14.6	16.3	12.8	18.2	14.6	18.9	14.8
PAC FLEET	11.5	15.2	14.3	15.7	12.8	19.2	10.3	12.2	11.0	13.2	13.7	13.7
PAC FLEET DEPLOYED	5.3	24.7	19.5	27.4	12.6	19.0	14.0	17.3	25.8	12.0	11.8	16.0
PAC FLEET READINESS	14.3	15.1	11.0	12.1	9.9	*****	6.3	5.9	5.8	7.5	13.3	9.4
PAC FLEET NON-DEPLOYED	13.0	13.3	12.8	14.6	12.2	17.4	8.9	10.0	8.9	14.1	14.1	12.7
PAC NAVY	11.2	15.2	14.3	15.4	12.6	19.2	10.3	12.2	11.0	13.2	13.7	13.7
PAC NAVY DEPLOYED	5.3	24.7	19.5	27.4	12.6	19.0	14.0	17.3	25.8	12.0	11.8	16.0
PAC NAVY READINESS	14.3	15.1	11.0	12.1	9.9	*****	6.3	5.9	5.8	7.5	13.3	9.4
PAC NAVY NON-DEPLOYED	13.0	13.3	12.8	14.6	12.2	17.4	8.9	10.0	8.9	14.1	14.1	12.7

SOURCE:
NAMSO 4790-A7049-01 dtd 210497 for 4Q95 - 2Q96
NAMSO 4790-A7049-01 dtd 210498 for 3Q96 - 1Q98
NAMSO 4790-A7049-01 dtd 210798 for 2Q98 - 3Q98

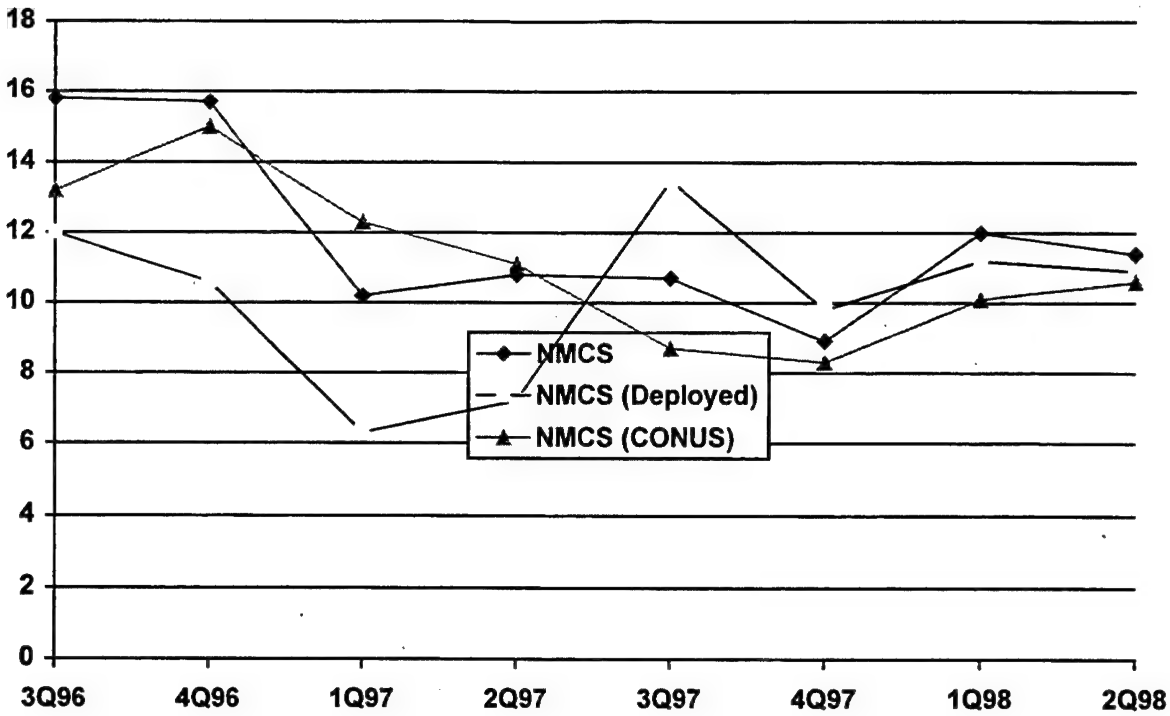
Table 3.3 Cannibalization Data Per 100 Flight Hours

cannibalizations per 100 flight hours over this two-year period. However, there was a sharp decrease from 17.1 to 11.6 cannibalizations per 100 flight hours from first to second quarter fiscal year 1997. After the sharp drop the total aircraft rate has steadily increased. Cannibalization rates for deployed aircraft have been quite erratic from quarter to quarter.



EA-6B Supply Support IPT Leader's Program Review 9/98

Figure 3.1 EA-6B CANNIBALIZATION PER 100 FLIGHT HOURS



Supply Support IPT leader's Program Review

Figure 3.2 Non Mission Capable Supply (NMCS) Data

However, cannibalization rates for CONUS aircraft closely parallel the total program trend with an increasing pattern over the past five quarters. Figure 3.2 is a chart brief that displays the percentage of EA-6B aircraft that are in a Non Mission Capable Supply (NMCS) status. NMCS is when an aircraft is not full mission capable (FMC) or mission capable (MC) due to lack of availability of supply parts or component. Figure 2.2 shows the percentage of deployed, CONUS, and total EA-6B assets that are NMCS per quarter from 3rd quarter fiscal year 1996 to 3rd quarter fiscal year 1998. Changes from quarter to quarter in figure 3.2 follow

a trend similar to the changes between quarters in figure 3.1. This shows some correlation between the percentage of NMCS and the total number of cannibalizations per flight hour. In-depth interviews conducted with COMNAVAIRPAC's EA-6B class desk and maintenance officers from other type classes revealed that aircraft in NMCS status for prolonged periods of time are prime targets for cannibalizations. Therefore it is a natural phenomenon that the more assets in NMCS status the higher number of cannibalizations that occur to keep remaining aircraft mission capable. Less FMC and MC aircraft available, the more flying those aircraft must accomplish to complete required missions. This in turn increases the number of both corrective and preventive maintenance actions on the operating aircraft, and increases cost and demand on parts, which further hinders the supply chain.

Aircraft can also be non-mission capable for maintenance (NMCM). The difference between NMCM and NMCS is that all the needed parts are available to complete repair for NMCM. The cause for not being mission capable is usually due to inadequate facilities, lack of support equipment, or lack of a particular skilled maintenance person assigned to that unit to complete the maintenance.

The only way we can correlate supply shortages to higher cannibalization rates is to compare cannibalization parts data to parts shortage data. The parts shortage data is usually in the form of a parts degrader list. COMNAVAIRPAC maintains a parts degrader lists for the fleet, and NADEP Jacksonville maintains the list for aircraft going through depot level maintenance. The squadron submits reports to COMVAQWINGPAC monthly. COMNAVWINGPAC forwards a consolidated report to COMNAVAIRPAC who maintains the information in a database.

C. COMPARING CANNIBALIZED PARTS LISTS TO DEGRADER LISTS

Parts degraders are defined as unavailable parts or components that render an aircraft non-mission capable. The scarcity of these parts, make it impossible for maintenance personnel to repair functions vital to the performance or safety of the aircraft. It is necessary to identify, document and track these degraders so that the operations personnel, the Program Manager and the supply system work together to procure the needed parts to improve the readiness of the program.

Appendix B is COMVAQWINGPAC's FY-98 list of parts that have been cannibalized from various EA-6B squadrons,

Aviation Intermediate Maintenance Depots (AIMD), COMVAQWINGPAC, and SDLM, and placed on aircraft from operational and deployed squadrons. All of these cannibalizations are between different activities and have been approved by COMVAQWINGPAC. These cannibalizations do not account for cannibalizations that occur within an activity (i.e. taking one part from an airplane in squadron VAQ-139 and putting the part in another aircraft from the same squadron).

Appendix B is arranged in National Item Identification Number (NIIN) sequence. NIIN or National Stock Number (NSN) sequence is how more than 90 percent of repair parts or other stock numbered items Navy wide are tracked through the Navy supply system. Appendix C is COMNAVAIRPAC's Fiscal Year 1998 Parts Degrader List provided by the EA-6B class desk.

In comparing both lists, I found that approximately 53 percent of the parts degraders were listed on COMVAQWINGPAC's cannibalized parts list (57 of 108 parts degraders are on the fleet cannibalization list). The parts that are listed in both Appendix B and Appendix C are printed in red. This shows that there is some correlation between parts shortages and cannibalizations. Forty two

percent of the 551 parts listed in Appendix B were a result of parts or component supply shortages.

If you look at the repairables in Appendix C, you will see that repair parts contributed to most of the shortages. 76 percent of the repair part shortages contributed to fleet cannibalizations. The data also show that there are a higher number of each repairable part being cannibalized, making repairable responsible for more than 85 percent of the cannibalizations caused by parts shortages.

This further supports the claim that parts shortages are a main contributor to the cannibalization problem of the EA-6B. However, since 48 percent of the cannibalizations were not the direct cause of parts shortages, this data also supports COMNAVAIRPAC's Plans and Policy Officer's theory that 50 percent of the cannibalizations are for convenience.

D. ANALYSIS OF NADEP CANNIBALIZED PARTS LIST

The Supply Support IPT Leader stated that 99.9 percent of all NADEP cannibalization actions are a direct result of supply parts shortages. She further stated that the inadequate sparing level for EA-6B parts has forced the NADEP to repair and re-manufacturer many of the non Ready-for-Issue components in house. The depot's component repair

effort has fallen short of fleet demand and the man-hours expended to get an aircraft through SDLM has dramatically increased.

Appendix D is the NADEP Jacksonville EA-6B Cannibalized Parts List for fiscal years 1997 and 1998. I conducted an analysis of these parts by comparing the date the parts were ordered to the date the parts were received. This list revealed that for parts cannibalized it took 8.5 months on average, from the time NADEP Jacksonville ordered the part until the part was received. The average of all requisitions was not 8.5 months just the items that were cannibalized. Out of 117 cannibalized parts that contained receiving or shipping data, only 16 parts were received in less than three months and 26 parts took over a year to reach the NADEP.

The reason for the lengthy order cycle time is that many of the components had to be produced or re-engineered by industry. If you look at the Inboard Slat assembly listed on the first page of Appendix D you will see that the component was order on 3 May 1996 and was not received until 27 March 1998, almost 23 months later. The slat assembly is part of the "tired iron" problem that most of the EA-6B flight control surface are experiencing. The main landing gear doors at the top of page 2 in Appendix D took almost

two years to be received as well. Currently, Grumman is producing new slats the first of which were delivered in October 1998.

This kind of re-engineering effort doesn't happen overnight. Engineers have to develop a new design that is compatible to the rest of the system. Testing of the remanufactured components must be conducted and the re-engineered part must by approved by the Program Manager prior to sending the part to the depot. This entire process not only takes time but is also quite costly to DoD.

I received a piece parts shortage list from the EA-6B Parts Manager from NAVICP. The parts manager consolidated this list from Grumman, DLA, and NADEP Jacksonville at the September 1998 Program Review conducted at the Grumman Aerospace plant in St. Augustine, FL. The NAVICP parts shortage list did not correlate very well with the parts that were cannibalized in Appendix D. Less than 10 percent of the parts on NAVICP's list contributed to depot level cannibalizations. The EA-6B Parts Manager stated that most of these parts were managed by DLA and that there was no recorded demand or outstanding requisitions for most of the parts on the list.

It appears that NADEP Jacksonville is not required to keep track of parts degraders that slow maintenance efforts

and increase the time it take for an aircraft to complete SDLM or received a modification block. What is happening is that the maintenance personnel at the depot query the system and find that there are no parts in the supply pipeline and that the contractor does not plan to produce any of the needed part in the near future. Instead of ordering the parts and waiting for the system to provide the part, the maintenance personnel manufacture the part in house. This in house manufacture takes time, and causes an underreported demand for the part. Moreover the part is likely reproduced at a cost higher than the manufacturer's cost. This contributes to the shortage of parts, and as previously stated, adds to the cannibalization problem.

IV. CURRENT CULTURE TOWARDS CANNIBALIZATIONS

A. ATTITUDES REGARDING CANNIBALIZATIONS

Most of the people who build, fly, repair and support aircraft understand that cannibalizations have undesirable affects on operational readiness. First, cannibalizations double the work of maintenance personnel, due to switching parts with other aircraft. Second, removing and installing parts multiple times between aircraft reduces the reliability of parts and increases the rate of failure. Third, improper or lack of documentation of cannibalization actions under-reports the severity of the cannibalization problem. With the mounting evidence against cannibalizations, we would expect that the Navy would avoid them at all cost, right? Well this is not the case. Cannibalizations have become a way of life not only for the aviation community but also on surface ships, submarines and other systems throughout DoD.

The reason cannibalizations occur so often is that cannibalizations improve short-term operational readiness of a squadron, company, command or battle group. For example, a Squadron Commander has four of four aircraft non-mission capable due to lack of spares. If given the option, almost

all Squadron Commanders would take the parts from the worst aircraft to make the other three aircraft full mission capable. When the Commander releases his Aviation Maintenance Readiness Report (which is submitted daily for deployed units) he would much rather report that 75 percent of his assets are mission capable versus zero assets being mission capable. The maintenance personnel I have talked to all agree that this would be the choice most successful Operational Commanders would make. Therefore, the Navy has a conflicting rewards system when it comes to cannibalizations (i.e. get assets battle ready by any means possible and reduce cannibalizations because they degrade long-term readiness). The conflicting incentives cause the operational Navy to actively cannibalize and under report the act.

The Program Manager wants the fleet to accurately report cannibalizations so that they can properly identify short falls in the supply chain and fight for increased funding to get the needed parts in the system to support the fleet. The Type Commanders want proper funding so that logisticians can acquire the needed parts and components to support maintenance of aircraft. This enables the Type Commander to meet future threats. If parts are not available, there is great pressure from the Type Commander

on down to maintenance crews to work around the material deficiencies and get as many aircraft to mission capable status as possible to deploy or make commitments. However, the Type Commander views cannibalizations for the curse that they really are and wants to see lower cannibalization rates, but maintain high levels of readiness so that assets match or exceed force goals. This is why the Navy is having such a difficult time finding viable solutions to rectify this problem. Various maintenance officers, the type desk and the Program Manager's supply support team believe that the people who can make the decisions to reduce cannibalizations and improve system supportability will not approve the money needed to resolve the problem. Stovepipe management practices are still preeminent within the Navy and DoD. The fleet commands, the supply system, the acquisition community and Congress promote their own self-interests. Trust has not developed between entities that rely on one another to function efficiently.

The fleet is pointing the finger at the supply system for not having enough spares, Congress for the lack of program funding, and the acquisition community for not designing systems that meet the customer's needs. The supply system is pointing its finger at acquisition and the fleet for changing their requirements and not documenting

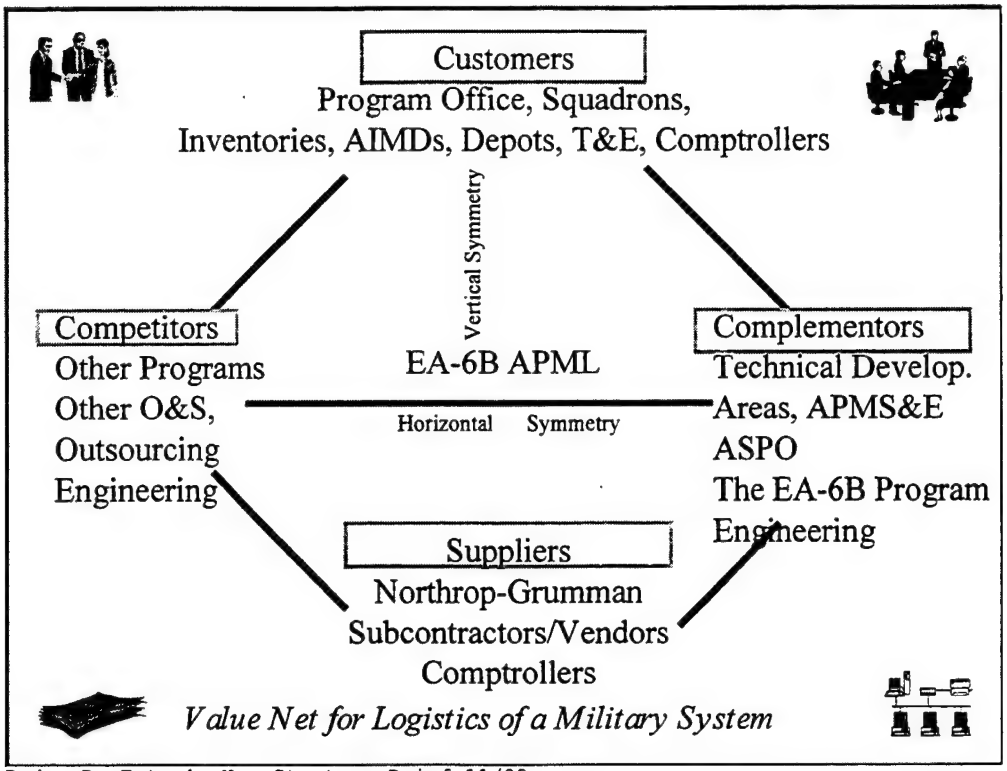
what they actually need. Acquisition blames the fleet for not knowing or communicating what they want and the supply system for not providing full parts support for programs.

This divided view of our senior leadership in the management of these programs and communities set the stage for the lack of focus on total system supportability and the cannibalization problems. New strategies are needed to improve supportability, validate funding and improve the documentation of cannibalizations. Total requirements must be validated to better support aircraft, which will in-turn reduce the number of cannibalizations.

The value net model which was adapted from Brandenburger-Nalebuff model, which was created by Adam M. Brandenburger a Professor at Harvard Business School and Barry J. Nalebuff of the Yale School of Management. This model takes the five elements of a strategy and creates balance between those elements. Radm. Donald R. Eaton, the logistics chair at the Naval Postgraduate School, adapted the model specifically for logistics functions. The five elements are Players, Added value of each player, Tactics to be achieved, Rules to follow, and Scope of the program. The Model balances the elements between the primary players of program support which are the function (EA-6B logistics), the customer (Program Office, Squadrons), complementors

(technical development, Engineering), suppliers (Grumman, Comptrollers), and competitors (Other programs, Outsourcing). The players in the model function in a foundation of shared values and trust in achieving a common strategic goal. That goal is maximizing life-cycle readiness at the best possible cost.

Figure 4.1 is the value net model for EA-6B logistics. The objective of the value net model is to achieve balance among the players and the elements, and equilibrium in the value net. For example: EA-6B logistics is the function, and is in the center of the model. Customers, complementors, suppliers, and competitors encircle the function. There is vertical symmetry between suppliers and customers, and horizontal symmetry between complementors and competitors. A well-balanced program establishes rules for each player to adhere to, achieves each player's goals, and ensures each player adds value to the process. No player will dominate the value net because a program not in balance will be insufficient for program effectiveness.



Radm .R. Eaton's New Strategy Brief 11/98

Figure 4.1 Value Net Model for EA-6B Logistics

DoD logistics should use a model such as this proposed model when conducting a Logistics Support Analysis for a program to ensure all aspects of the program are accounted for when planning life cycle logistics support. For current programs such as EA-6B, this model can assist the Navy in rectifying the problems that took years to develop.

B. WHAT EA-6B MANAGEMENT IS DOING TODAY

Most problems have to build and threaten the ability of an organization to survive before major changes that can effectively deal with the problems occur. The EA-6B Program Manger, Grumman Aerospace, NAVICP, DLA and the fleet are finally working together to make changes to improve supportability and reduce the cannibalizations.

Several new initiatives were launched in fiscal year 1998 to improve supportability of the EA-6B program. First, the NADEP, Program Manager, and Grumman Aerospace are working as a single team to identify program problems, pool resources, maximize storage facilities, and forecast parts usage. These organizations have funded joint engineering analysis to forecast increased parts usage of the flight control surfaces due to the effects of "tired iron".

Second, Integrated Product Teams (IPTs) have been formed to manage critical components and produce parts for items such as landing gear, J52 engines and flight control surfaces. The IPTs meet regularly to work on solutions to problems that cannot be resolved by one organization or functional specialty. The IPT is comprised of cross-functional personnel such as engineers, logisticians, production controllers, schedulers, examination and

evaluation personnel, production personnel, equipment specialist, etc.

Third, Survivability studies are being conducted to determine requirements for EA-6B and to ensure that the aircraft is operational through 2015. Along with the survivability studies, risk analysis is being conducted to determine the feasibility of purchasing various parts and technology today vice planning future purchases.

Fourth, DLA now attends the quarterly program reviews and is taking a more proactive role working with NAVICP to ensure the piece parts inventories support components managed by NAVICP and match NADEP and Fleet demand.

Fifth, the first Suppliers Conference was conducted in November 1998 with industry to announce future requirements for the EA-6B. The intent of the conference was to stir up interest in EA-6B, attract innovative new companies to work with the Navy and Grumman Aerospace in the development of replacement components, and let the business community know that the EA-6B program is not dead.

Sixth, the Rewing IPT has established a plan with Grumman to replace the center section of the wings on 81 EA-6B aircraft. The rewing effort started in early 1998 addresses more tired iron problems and will be completed in fiscal year 2005. This effort is a step in the right

direction but the team has already fallen behind because as of 14 September 1998 none of the five aircraft scheduled for induction in fiscal year 1998 were delivered to the depot.

These initiatives support the Program Manager and his Supply Support IPT over-arching goal to have 104 operational EA-6B aircraft by the end of fiscal year 2000. They plan to do this by working with organic activities with the unified goal of increasing parts availability and decreasing the number of aircraft that are in non mission capable status.

In addition to the above initiatives, Grumman is producing new Outboard Slats and fielding them at a rate of two slats per month for the next 6 years. NADEP Jacksonville is modifying old A6E landing gear doors to replace worn-out doors in current use. The fleet has committed to providing long range requirements to the NADEP to assist them providing support to return full mission capable aircraft to the fleet.

V. CONCLUSIONS AND RECOMMENDATIONS

A. OBJECTIVES

The objectives of this thesis were to research and present the root causes of the EA-6B cannibalizations and to discover ways to improve supportability and reduce EA-6B cannibalizations. This thesis presented and discussed key events that lead to the current EA-6B cannibalization problem. An analysis was conducted on cannibalization rates per 100 flight hours, cannibalization data and parts shortage data. This thesis presented viewpoints on the subject of cannibalization from various personnel on different levels of oversight and operations with the Navy and the Acquisition community.

B. CONCLUSIONS

The following are the conclusions of this research:

1. Shortages in the supply system and slow support response are the major cause of cannibalizations.

2. Poor execution of shifting EA-6B maintenance responsibility from NADEPs Norfolk and Alameda to NADEP Jacksonville caused the EA-6B maintenance back-load, damaged critical flight control surface components due to inadequate

storage, and lengthened the pipeline for an aircraft to complete SDLM.

3. The ASPA program delay scheduled maintenance which caused the total failure of some components, and distorted actual parts and component demand, which reduced the effectiveness of the supply system.

4. Cannibalization rates have increased over the past two years and will continue to increase unless more parts are expediently brought into the system.

5. Lack of support forces the Navy to resort to cannibalizations at the operational and training level to make commitments.

6. Documenting and tracking of cannibalizations have improved at the Wing, COMNAVAIRPAC and NAVAIR. However, documentation of cannibalizations within squadrons and onboard must improve.

7. The Program Manager, Grumman, and the supply system are executing a plan to have 104 aircraft mission capable by the end of fiscal year 2000.

8. NAVICP and DLA have not fully coordinated efforts to ensure proper material support for the EA-6B program.

9. The Navy has not determined what is most important: maintaining the integrity of the weapon system or making all operational and training missions.

10. The supply system is not fully aware of the parts degraders, rendering it difficult to provide material support.

11. The time period for an aircraft to go through SDLM is too long and the cost is too high.

12. There is a lack of total asset visibility at various levels causing unnecessary delay in the supply chain further delay repair and maintenance of aircraft.

C. RECOMMENDATIONS TO IMPROVE SUPPORTABILITY

Recommendation 1: The Navy must develop a strategic plan to ensure that supportability and sparing levels are in the system to support the operation of 104 EA-6B which is the current PAA.

Recommendation 2: The Navy should make a binding contract for a Navy-wide readiness target with all the players in the value net for EA-6B logistics. This should include rewarding contractors with incentive based contracts to obtain an 104 PAA for EA-6B.

Recommendation 3: Disestablish the ASPA program. The ASPA program delays critical maintenance, and distorts the demand for parts by causing lumpy demand of material.

Recommendation 4: Employ Total Asset Visibility for all critical parts and assign an individual or IPT responsible for expediting parts to the end users (i.e. depot, squadron, Wing). Current system and available technology can support this. This will allow maintenance or operational commands to locate needed parts in the logistics chain prior to requisitioning parts, and obtain immediate status of outstanding requisitions.

Recommendation 5: Get NAVICP and DLA involved early in the establishment of sparing levels and maintenance rates for upcoming programs such as F22 and Joint Strike Fighter.

Recommendation 6: Obtain full funding for the maintenance of the additional 24 aircraft added to PAA for EA-6B. This will enable the Program Manager to achieve the goal of 104 full mission capable aircraft before the end of fiscal year 2000.

Recommendation 6: Develop Contingency Plan to Change maintenance facilities and conduct training in case of another facility Closures.

Recommendation 8: Task Industry and the program office to plan for upgrades utilizing future technologies, and to conduct smart shutdown of production lines.

Recommendation 9: Upgrade software for the NALCOMIS maintenance program to make it easier to report cannibalizations and reduce the need for two separate reports when maintenance actions includes cannibalized parts.

Recommendation 10: The Wing should forward degraders lists to the Program Manger and NAVICP Components Manager, not just the Type Commander. This will ensure that the supply chain is aware of the parts shortages as soon as they occur and that can take quicker action to get more parts into the pipeline.

Recommendation 11: Determine the critical path for an aircraft to complete SDLM. Employ Critical Path Management techniques to reduce to time it takes for an aircraft to complete SDLM.

Recommendation 12: The Navy must incentivize contrators and program managers to focus on total life cycle support of

current programs even if short-term mission accomplishment is sacrificed to achieve it. The use of award and incentive based contracts should increase to achieve this.

D. AREAS FOR FURTHER STUDY

The results reported in this thesis by no means provides a complete answer to the EA-6B parts support and cannibalization problems. This thesis identifies prime culprits and recommends ways to that can rectify the situation. Some areas of follow-on research are discussed below.

(1) There is a need to conduct actual research on squadron maintenance procedures, and to collect data on failure rates and the effects that cannibalizations have on maintenance crews in regard to man-hours spent and documentation of cannibalization.

(2) A study on the benefits of the ASPA program should be conducted to examine the percentage of aircraft that are deferred for depot level maintenance. This study would also determine the impact ASPA has had on the life of components and failure rates of parts and components, and to weigh the pros and cons of delaying maintenance.

(3) A research study similar to this thesis should be conducted on the S-3 Skywarrior due to the fact that the S-3 has the highest cannibalization rate in naval aviation.

(4) Conduct in-depth research on applying the Brandenburger-Nalebuff model with MILSPEC 1388 in preparing an LSA for an acquisition program to determine if the model will improve life-cycle logistics support.

APPENDIX A. SUMMARY OF EVALUATION OF EA-6B COMPONENTS

Prior to evaluation, each component was uncrated (when crated). The aircraft examiner and other members of the team would then perform a comprehensive visual examination of the component. All components consisting of aluminum honeycomb or composite structure were thoroughly tap-tested for delaminations and disbonds. Defects including corrosion, cracks, dents, punctures, broken fittings, missing parts, warpage, and non-standard fleet repairs were also considered in determining the material condition category assigned to a given component. The level of repair and man-hours required to implement the repair were always discussed between shop artisans, aircraft examiner and engineering prior to assigning the material condition number. Information appearing on the component identification plates was also examined to verify part number and document serial number when available. The number corresponding to the material condition was also documented then painted directly on the component and on all sides of the package/container once repackaged.

The packaging condition generally fell into a category of Excellent, Good, Fair, Poor, Very Poor, or none (no package). In most cases where the packaging condition was categorized as poor or very poor, the package was either rotted, water logged, warped, open, and/or damaged in transit. This information was also documented to demonstrate the impact poor packaging had on the material condition of a component.

A database was compiled and maintained throughout the evaluation process. Progress and results were periodically reported to NAVICP to keep them abreast of their dwindling supply of repairable assets.

FINDINGS:

Enclosure (1) provides a summary of the 708 components evaluated. This summary is broken down into three sections. Section I provides the total number of components evaluated by stock number and the total number of each that fell into one of the four material-condition categories described above. Section II also provides the total number of components evaluated by stock number and the total number of each that fell into one of the six package-condition categories described above. Section III provides a detailed listing of part number, serial number, material condition, and package condition for each component evaluated.

Category 1 – Repair requirements for component would be minimal and require a number of man-hours below the standard allocated to the depot for repair.

Category 2 – Repair requirements would be standard and could be accomplished within the number of man-hours allocated to the depot for repair.

Category 3 – Repair requirements would be extensive and well above the number of man-hours allocated to the depot for repair.

Category 4 – Component was damaged beyond the depot's current repair capabilities or was obsolete. Generally, the component would require a "re-manufacturing process" vice repair process that would exceed the total cost of replacement.

Throughout the evaluation process, many common defects and failure modes were identified for each type of EA-6B component. The following provides a brief summary:

1. **Nose Radomes**:

Total Evaluated: **52**

Material Condition: Category 1 – 11.5%
Category 2 – 23.1%
Category 3 – 23.1%
Category 4 – 38.5%*

Typical damage: Delaminations, disbonds and breaks in fiberglass shell, corrosion in vicinity of fasteners.

Note: All identified as category 4 are to be re-shelled under OEM contract.

2. **Rudders**:

Total Evaluated: **1**

Material Condition: **Category 3**

Typical damage: Severe corrosion/moisture and disbonds in the aluminum honeycomb trailing edge assembly with many non-standard repairs. Corrosion in vicinity of fasteners attaching leading edge access panel to rudder. Corrosion along primary beam of trailing edge assembly. Rudders reworked concurrently with SDLM aircraft have, or require numerous taco-type repairs on trailing edge.

Note: This was the only F-condition rudder in supply during evaluation period.

3. **Outboard Slats (EA-6B)**:

Total Evaluated: **32**

Material Condition: Category 1 – 6.3 %
Category 2 – 15.6 %
Category 3 – 21.9 %
Category 4 – 56.3 %

Typical damage: Severe corrosion/moisture resulting in disbonds in the slat aluminum-honeycomb, trailing-edge assembly with many non-standard repairs. Warpage of trailing edge assembly, worn actuator attach fittings, cracks in leading edge skin, worn/chaffed upper locklips, and cracked track-attach ribs at SS-249 and SS-187.

4. **Inboard Slats (A6-E)**:

Total Evaluated: **10**

Material Condition: Category 1 – 20 %
Category 2 – 70 %
Category 3 – 10 %
Category 4 – 0 %

Typical damage: Severe corrosion/moisture and disbonds in trailing edge assembly on those reworked concurrently with SDLM aircraft.

Note: There were no F-condition EA-6B inboard slats in supply during evaluation period. Those evaluated were configured for the A6-E aircraft, not EA-6B. Seven of the 10 evaluated were recently manufactured under contract for the A-6E composite wing. A6-E inboard slats require considerable modification prior to use on EA-6B aircraft.

5. **Inboard Flaps (EA-6B, older configuration)**:

Total Evaluated: **110**

Material Condition: Category 1 – 1 %

Category 2 – 14.5 %
Category 3 – 46.4%
Category 4 – 38.1 %

Typical damage: Severe corrosion/moisture resulting in disbonds in the aluminum honeycomb trailing edge assembly. Many non-standard repairs in trailing edge assembly. Nearly all hinge fittings had corrosion in the center lug bushings and up-lock rollers. Most of the up-lock rollers were seized up as a result of corrosion.

Note: A large number of these components were identified as higher-configuration flaps although they were of the older configuration.

6. **Inboard Flaps (EA-6B, newer configuration)**:

Total Evaluated: **68**

Material Condition: Category 1 – 11.8 %
Category 2 – 42.2 %
Category 3 – 35.3 %
Category 4 – 11.7 %

Typical damage: Corrosion/moisture and disbonds in the aluminum honeycomb trailing edge assembly. Nearly all hinge fittings had corrosion in the center lug bushings and up-lock rollers. Most of the up-lock rollers were seized up as a result of corrosion.

7. **Inboard Flaps (A6-E)**:

Total Evaluated: **5**

Material Condition: Category 1 – 40 %
Category 2 – 60 %
Category 3 – 0 %
Category 4 – 0 %

Typical damage: Severe corrosion/moisture resulting in disbonds in the aluminum honeycomb trailing edge assembly. Many existing repairs in trailing edge assembly. Nearly all hinge fittings had corrosion in the center lug bushings and up-lock rollers. Most of the up-lock rollers were seized up as a result of corrosion.

8. **Outboard Flaps (EA-6B, older configuration)**:

Total Evaluated: **97**

Material Condition: Category 1 – 9.3 %
Category 2 – 18.5 %
Category 3 – 21.6 %
Category 4 – 50.5 %

Typical damage: Severe corrosion/moisture resulting in disbonds in the aluminum honeycomb trailing edge assembly. Many existing repairs in trailing edge assembly. Cracks in lower skin of trailing edge assembly at hinges. Nearly all hinge fittings had corrosion in the center lug bushings and up-lock rollers. Most of the up-lock rollers were seized up as a result of corrosion. A tear-down study conducted by the A-6 FST/Code 4.3.3 revealed excessive quantity of adhesive used in three large area repairs resulted in a significant increase in weight in addition to all of the discrepancies annotated above.

Note: A large number of these components were identified as a higher-configuration flap, although they were of the older configuration.

9. **Outboard Flaps (EA-6B, newer configuration)**:

Total Evaluated: **43**

Material Condition: **Category 1 – 34.9 %**
Category 2 – 32.6 %
Category 3 – 25.5 %
Category 4 – 7 %

Typical damage: Corrosion/moisture and disbonds in the aluminum honeycomb trailing edge assembly. Cracks in lower skin of trailing edge assembly at hinges. Nearly all hinge fittings had corrosion in the center lug bushings and up-lock rollers. Most of the up-lock rollers were seized up as a result of corrosion.

10. **Outboard Flaps (A-6E)**:

Total Evaluated: **13**

Material Condition: **Category 1 – 61.5 %**
Category 2 – 23.1 %
Category 3 – 7.7 %

Category 4 – 7.7 %

Typical damage: Nearly all hinge fittings had corrosion in the center lug bushings and up-lock rollers. Most of the up-lock rollers were seized up as a result of corrosion. These require modification for use on EA-6B aircraft.

11. **Inboard Flaperons**:

Total Evaluated: **79**

Material Condition: Category 1 – 15.2 %
Category 2 – 25.3 %
Category 3 – 20.3 %
Category 4 – 39.2 %

Typical damage: Severe corrosion/moisture and disbonds in the aluminum honeycomb trailing edge assembly. Damaged hinges. Fiberglass trailing edge damage.

12. **Outboard Flaperons**:

Total Evaluated: **30**

Material Condition: **Category 1 – 36.7 %**
Category 2 – 23.3 %
Category 3 – 26.6 %
Category 4 – 13.4 %

Typical damage: Cut, bent, and corroded hinge. Fiberglass trailing edge damage.

Note: No aluminum honeycomb in structure.

13. **Horizontal Stabilizers**:

Total Evaluated: **105**

Material Condition: Category 1 – 6.6 %
Category 2 – 45.7 %
Category 3 – 23.8 %
Category 4 – 25.7 % **

Typical damage: Severe corrosion/moisture and disbonds in the aluminum-honeycomb trailing edge assembly. Numerous existing honeycomb repairs on trailing edge assembly. Damage to trailing edge assembly resulting from improper transportation methods of those received by the storage facility with inadequate or no packaging. This problem has also occurs when those with inadequate or no packaging are transported from the storage facility to the receiving rework activity. Evidence of cracked ribs in the box-beam section, particularly at the outboard closure rib, was also observed.

Note: All identified as category 4 were found to be obsolete configurations, the majority of which were misidentified as a non-obsolete configuration. The majority of those identified as category 3's had extensive trailing edge damage and would be good candidates for trailing edge replacements.

14. **Upper and Lower Speedbrakes**:

Total Evaluated: **62**

Material Condition: Category 1 – 21 %
Category 2 – 45.2 %
Category 3 – 14.5 %
Category 4 – 19.4 %

Typical damage: Corrosion and disbonds in the aluminum-honeycomb trailing edge assembly (not as severe as with other components). Damaged, corroded attach fitting holes.

APPENDIX B. COMNAVWINGPAC FY-98 CANNIBALIZED PARTS LIST

NIIN	NOMEN	DATE	FROM	TO	DOC NUMBER
00-004-4836	CONNECTOR	02-Dec-97	139	132	7335-GP08
00-005-5513	FITTING	05-Nov-97	128	133	7308-GX50
00-006-0439	AFT CANOPY CYLINDER	12-Mar-98	131	133	8069-GX86
00-018-1401	ANTISKID CONTROL	29-May-98	CVWP	138	8147-GL01
00-021-7145	VALVE	30-Oct-97	CVWP	139	7300-GV39
00-021-7145	VALVE ASSY	28-Jul-98	SDLM	129	8181-GK47
00-021-7145	VALVE ASSY	28-Jul-98	SDLM	129	8088-GM10
00-021-7145	VALVE ASSY	28-Jul-98	SDLM	129	8082-GK17
00-021-7145	VALVE ASSY	12-Mar-98	SLDM	129	7355-GK54
00-038-1172	STARTER	10-Sep-98	CVWP	130	8252-GM73
00-038-1172	STARTER	01-Aug-98	CVWP	141	8212-GW38
00-038-1172	STARTER	03-Sep-98	CVWP	130	8243-GM28
00-060-5891	COMBNR, RADIO	28-Jul-98	SDLM	129	8144-GK53
00-060-5891	COMBINER RADIO	14-Nov-97	139	133	7288-GX89
00-063-9525	VALVE	31-Jul-98	CVWP	129	8210-GK65
00-064-9388	VALVE	10-Mar-98	CVWP	142	8065-GC51
00-067-9066	CONTROL ANT	13-Apr-98	CVWP	133	8097-GX35
00-067-9066	CONTROL ANT	25-Jun-98	CVWP	133	8175-GX13
00-074-2063	REGULATOR PRESSURE	19-Feb-98	CVWP	130	8050-GM19
00-076-0493	STRAP ASSY	24-Sep-98	CVWP	141	8267-GW34
00-083-6247	ADAPTER	01-Aug-98	CVWP	129	8212-GK18
00-087-6581	VALVE, SHUTOFF	20-Jan-98	141	132	7339-GP36
00-087-6581	VALVE, SHUTOFF	05-Dec-97	128	132	7339-GP36
00-087-6581	SHUTOFF VALVE	14-Jul-98	CVWP	141	8194-GW34
00-102-4534	ANTI ICE VALVE	18-May-98	AIMD	131	8135-GN55
00-102-4534	ANTI-ICING VALVE	09-Jan-98	AIMD	141	8008-GW40
00-102-4534	ANTI-ICING	20-Jan-98	AIMD	133	8008-GW40
00-103-4450	LANDING GEAR	22-Oct-97	142	135	7289-GT76
00-106-9554	APC AMP	16-Jan-98	CVWP	142	8014-GC65
00-109-6231	STABILIZER	18-Dec-97	135	128	7328-GT18
00-110-6130	HF COUPLER	13-Apr-98	CVWP	133	8097-GX34
00-110-6130	HF COUPLER	13-Apr-98	CVWP	133	8100-GX61
00-126-5072	FUEL FLOW INDICATOR	29-May-98	135	130	8148-GM05
00-132-3170	DOOR, MLG	04-Jun-98	SDLM	129	8151-GK21
00-132-3170	DOOR, MLG	04-Jun-98	SDLM	129	8145-GK54
00-132-3170	DOOR, MLG	04-Jun-98	SDLM	129	8082-GM75
00-132-3170	DOOR LANDING	28-Jul-98	CVWP	129	8207-GK06
00-132-3178	LANDING GEAR DOOR	22-Oct-97	131	139	7294-GV19
00-132-3178	DOOR ASSY	12-Mar-98	SLDM	129	8064-GK42
00-132-3178	DOOR, MLG	04-Jun-98	SDLM	129	8064-GK42
00-132-3178	DOOR, MLG	04-Jun-98	SDLM	129	8086-GX18

00-133-7868	INDICATOR	01-May-98	CVWP	141	8105-GW99
00-133-7868	INDICATOR	14-Apr-98	CVWP	131	8104-GN29
00-146-6950	CONTROL ASSY	02-Dec-97	139	132	7335-GP11
00-149-8543	BEARING SLEEVE	09-Oct-97	139	132	7278-GX72
00-152-2655	DAMPER WHEEL	24-Oct-97	142	139	7296-GV27
00-152-2655	SHIMMY DAMPNER	18-Feb-98	128	135	8048-GT38
00-152-2655	DAMPER WHEEL	09-Oct-97	139	132	7268-G964
00-152-2655	DAMPER WHEEL	12-Mar-98	131	128	8048-GT38
00-152-2655	DAMPNER WHEEL	05-Mar-98	141	135	8063-GT90
00-152-2655	DAMPNER, WHEEL	12-Mar-98	SLDM	141	8063-GT90
00-152-2743	BRAKE	04-Jun-98	135	138	8155-GL13
00-152-2743	BRAKE	04-Jun-98	130	132	8154-GP60
00-160-2198	RCVR-TRANS	27-Oct-97	CVWP	139	7299-GV31
00-160-2198	APX-72 R/T	09-Jan-98	CVWP	140	8009-GU23
00-163-6309	CRANK ASSY	09-Sep-98	CVWP	135	8251-GT19
00-165-5720	IND HYD PRESSURE	25-Sep-98	CVWP	141	8267-GW45
00-165-5720	HYD INDICATOR	13-May-98	CVWP	131	8132-GN32
00-168-3630	ASW-25 CV DIGITAL RCVR	13-Apr-98	CVWP	130	8100-GM58
00-168-3630	ASW-25 CV	05-Jun-98	CVWP	132	8156-GP74
00-168-3802	PANEL REGULATOR	11-May-98	CVWP	141	8129-GW70
00-168-7820	APN-154 RCVR	19-Mar-98	131	142	8061-GC14
00-169-0535	VALVE	07-Jul-98	CVWP	130	8187-GM68
00-169-0585	VALVE ASSY	12-Mar-98	SLDM	141	8048-GW39
00-225-2556	BELL CRANK	16-Oct-97	133	132	7284-GP89
00-226-2481	VALVE	24-Sep-98	CVWP	141	8266-GW21
00-227-2822	ROLLER BEARING	26-Jan-98	131	133	8023-GX77
00-232-7914	INTERIOR PANEL	07-Aug-98	CVWP	128	8209-GF35
00-238-6910	CABLE ASSY	20-Feb-98	CVWP	140	8050-GU01
00-262-6584	STUD	20-May-98	AIMD	130	8139-GM67
00-268-0489	EJECTION SEAT	08-Apr-98	132	129	8097-GK18
00-284-1397	TIME DELAY MECH	09-Oct-97	139	132	
00-325-2760	ELEMENT	23-Jun-98	CVWP	137	8167-G999
00-332-3935	RADOME	24-Oct-97	142	134	7296-GS18
00-332-3935	RADOME	06-Feb-98	141	133	8036-GX55
00-332-3935	NOSE RADOME	24-Feb-98	128	142	8053-GC48
00-332-3935	RADOME	06-Jan-98	131	133	7350-GX89
00-332-3935	RADOME	07-Jan-98	131	133	7350-GX89
00-402-8651	FWD CANOPY	12-Mar-98	131	133	8071-GX09
00-415-7985	HYDRAULIC RESERVOIR	23-Mar-98	131	142	8081-GC02
00-418-2323	LINK ASSY	10-Oct-97	139	135	7210-GL44
00-418-2392	TRUSS	06-Jan-98	131	140	7365-GU73
00-418-2392	TRUSS ASSY	24-Nov-97	139	135	7325-GT14
00-421-4546	CYLINDER ASSY	22-Jan-98	141	135	8022-GT29
00-421-4546	CYLINDER	23-Jan-98	131	133	8022-GX74
00-421-4628	FITTING CONTROL	17-Mar-98	CVWP	139	8076-GV65
00-421-4632	HEAT SHROUD	14-May-98	CVWP	129	8078-GK45

00-421-4667	SLAT ASSY	12-Mar-98	SLDM	131	8014-GT16
00-421-4667	SLAT ASSY	04-Jun-98	SDLM	129	8117-GT77
00-421-4667	SLAT ASSY	04-Jun-98	SDLM	129	8125-GM21
00-421-4667	PORT SLAT ASSY	15-Jan-98	131	135	8014-GT16
00-421-4667	SLAT ASSY	04-Jun-98	SDLM	129	8089-GP15
00-421-7732	CYLINDER ASSY	17-Jul-98	SDLM	131	8196-GN33
00-422-1488	ELBOW ASSY	09-Jun-98	CVWP	128	8159-GF95
00-444-3327	STATION SELECT PANEL	24-Mar-98	141	133	8082-GX89
00-451-8172	BULLET ASSY	06-Mar-98	AIMD	128	8057-GF51
00-451-8172	BULLET ASSY NOSE	27-May-98	AIMD	133	8146-GX85
00-451-8748	REGULATOR	20-Jan-98	141	132	8014-GP48
00-464-7908	CLAMP	09-Jun-98	CVWP	128	8159-GF94
00-465-2357	FITTING ASSY	07-May-98	135	139	8126-GV70
00-465-2370	STRUT ASSY	25-Nov-97	142	134	7328-GS98
00-479-9982	CLAMP SECTOR	08-Jan-98	132	139	7356-GV06
00-479-9990	BULLET ASSY	12-Mar-98	AIMD	139	8063-GV03
00-480-3247	CONTROL RAD	05-Jun-98	CVWP	132	8140-GP65
00-482-4221	SHOULDER PIN	12-Mar-98	CVWP	134	8041-GS32
00-482-6607	SHAFT ASSY	19-Mar-98	AIMD	139	8077-GV86
00-482-6608	SHAFT ASSY	19-Mar-98	AIMD	139	8077-GV87
00-483-1844	BIRDCAGE ACT	16-Oct-97	133	132	7281-GP79
00-483-1844	BIRDCAGE ACT	04-Nov-97	128	133	7281-GP79
00-483-1853	LEVER ASSY	02-Dec-97	139	132	7335-GP09
00-494-5734	BOLT, SHEAR	10-Oct-97	139	135	7259-GT75
00-526-4394	RUDDER TRIM TX	27-Oct-97	CVWP	128	7300-GF38
00-567-5142	VALVE FUSELAGE TANK	05-Mar-98	141	136	8064-G647
00-575-3469	RPM INDICATOR	18-Mar-98	131	142	8076-GC42
00-630-0310	LOX COUPLING	16-Oct-97	133	132	7268-GX50
00-689-3450	PANEL AND S	25-Jun-98	CVWP	137	8173-G907
00-758-8090	DOOR ASSY	20-Feb-98	CVWP	129	8050-GK27
00-758-8090	BATTERY DOOR	14-May-98	CVWP	129	8076-GC46
00-759-8492	ASN-50	08-Jun-98	128	138	8156-GL21
00-781-3990	RECTIFIER TRANSFORMER	09-Mar-98	131	132	8066-GP50
00-787-1010	PROBE	23-Feb-98	AIMD	131	8051-GN35
00-803-2767	IPI	29-Oct-97	142	132	7301-GP71
00-803-2767	IPI	21-May-98	CVWP	132	8134-GP40
00-822-3032	HEAT EXCHANGE	18-Feb-98	CVWP	129	8041-GK08
00-822-3032	HEAT EXCHANGE	18-Feb-98	CVWP	129	8042-GK16
00-836-9173	PUMP/SHIM	06-Oct-97	CVWP	140	7279-GU46
00-841-6509	TRANSDUCER	14-Apr-98	CVWP	131	8104-GN30
00-869-9480	INDICATOR	30-Oct-97	142	131	7300-GN78
00-871-0592	FUEL FLOW TRANSFER	02-Oct-97	AIMD	132	7275-GP57
00-871-0592	F/F TX	16-Jul-98	AIMD	128	8196-GF99
00-872-2624	SHUTOFF VALVE	04-Mar-98	CVWP	134	TBA
00-877-8824	SENOR SPEC	18-Mar-98	CVWP	133	8077-GX62
00-894-1420	VALVE	20-May-98	130	132	8138-GP50

00-906-0598	COMPENSATOR	25-Nov-97	142	133	7323-GX02
00-906-0598	COMPENSATOR	07-Nov-97	128	129	7310-GK29
00-913-1729	VALVE	29-Jul-98	CVWP	129	8206-GK02
00-918-0862	IGNITER CABLE	15-Oct-97	AIMD	134	7288-GS69
00-920-8878	SENSOR, TEMP	28-Jul-98	SDLM	129	8152-GT47
00-925-4676	REGULATOR ASSY	18-Sep-98	AIMD	129	8259-GK34
00-932-4257	SWITCH	14-Sep-98	131	128	8255-GF77
00-939-0507	VALVE LINEAR	19-Feb-98	CVWP	139	8043-GV28
00-939-0507	LINEAR VALVE	25-Feb-98	131	132	8055-GP36
00-939-0507	SOLENOID VALVE	19-Mar-98	CVWP	131	8055-GP36
00-939-0507	VALVE	29-Jul-98	CVWP	129	8209-GK44
00-946-5379	OIL COOLER ASSY	30-Mar-98	CVWP	141	8088-GW94
00-950-3404	FUEL SOLENOID	09-Jan-98	CVWP	142	7282-GC29
00-950-9495	BUSHING	04-Sep-98	CVWP	129	8246-GK26
00-97-3760	VALVE	07-May-98	128	131	8126-GN05
00-970-3760	TEMP CONTROL VALVE	10-Oct-97	139	135	7282-GX84
00-970-3760	TEMP CONTROL VALVE	09-Oct-97	135	133	7282-GX84
00-970-3761	TEMP CONTROLLER	18-May-98	CVWP	131	8138-GN59
00-970-3768	TEMP CONTROLLER	08-Jun-98	CVWP	139	8157-GV91
00-970-3768	CONTROLLER	08-May-98	CVWP	133	8127-GX64
00-970-6659	BOOST PUMP	03-Feb-98	CVWP	135	8032-GT56
00-970-6672	DAMPER	23-Mar-98	CVWP	129	7325-GK12
00-970-6672	DAMPER ASSY	12-Mar-98	SLDM	129	7325-GK12
00-970-6672	DAMPNER WHEEL	11-Dec-97	CVWP	136	7329-G634
00-971-2668	SHAFT ASSY	28-Jul-98	SDLM	129	8163-GW60
00-971-2668	SHAFT ASSEMBLY	04-Mar-98	141	133	7309-GW12
00-971-2668	SHAFT ASSY	18-Mar-98	CVWP	141	7309-GW12
00-971-2668	SHAFT ASSY	28-Jul-98	SDLM	129	8152-GK30
00-971-3731	ENG MOUNT FITTING	30-Mar-98	CVWP	129	8088-GK39
00-983-4383	TRANSMITTER	20-Feb-98	CVWP	141	8048-GW43
00-983-4383	TRANSMITTER	23-Jun-98	CVWP	129	8168-GF50
00-983-4383	TRANSMITTER	20-Feb-98	CVWP	130	8051-GM28
00-983-4383	TRANSMITTER	11-Sep-98	140	137	8254-G916
00-983-4383	TRANSMITTER	29-Apr-98	CVWP	133	8118-GX52
00-984-1028	ACCELEROMETER	12-Mar-98	SLDM	141	7337-GW37
00-984-1028	ACCELEROMETER	12-Mar-98	SLDM	131	7315-GU14
00-984-1028	ACCELEROMETER	22-Jul-98	CVWP	141	8201-GW78
00-984-1028	ACCELEROMETER	06-Jan-98	131	140	7351-GU14
01-010-0375	REPAIR KIT	25-Sep-98	CVWP	128	8266-GF75
01-011-4367	PANEL	11-Sep-98	140	128	8244-GF32
01-017-5361	EMERG RAT	17-Nov-97	CVWP	134	7315-GS37
01-021-8686	RUDDER ASSY	28-Jul-98	SDLM	129	8169-G629
01-041-3935	RUDDER PACK	24-Sep-98	CVWP	137	8266-G938
01-041-9633	SCREW	20-Oct-97	133	132	7290-GP23
01-043-9832	ICS CB	03-Nov-97	128	132	7303-GP89
01-060-5049	ANC	14-Sep-98	140	130	8257-GM97

01-060-5049	AIR NAV COMPUTER	04-Dec-97	142	134	7337-GS55
01-060-5049	ANC	11-Sep-98	140	128	8245-GF40
01-060-5049	AIR NAV COMPUTER	24-Sep-98	CVWP	141	8264-GW94
01-060-5049	ANC	11-Sep-98	140	128	8251-GF58
01-065-8429	CROSSOVER TUBE	21-May-98	AIMD	130	8140-GM78
01-067-8336	OIL PRESSURE TRANSMITTER	26-Nov-97	AIMD	134	7329-GM15
01-081-7945	RESERVOIR	10-Feb-98	128	139	8037-GV95
01-081-7945	RESERVOIR	12-Mar-98	131	128	8037-GV95
01-082-7951	INDICATOR	21-May-98	CVWP	130	8137-GM48
01-085-0348	STICK CONTROL	10-Oct-97	139	135	7266-GL65
01-085-0348	CONTROL STICK	11-Feb-98	141	140	8040-GU82
01-095-9182	STAB ACTUATOR	07-Jan-98	131	133	7353-GX16
01-095-9182	STAB ACTUATOR	06-Jan-98	131	133	7353-GX16
01-098-2239	VALVE	26-Jun-98	CVWP	133	8177-AX67
01-098-2239	VALVE	26-Jun-98	CVWP	133	8177-AX69
01-124-7954	RADAR	07-May-98	128	133	8126-GX62
01-139-7385	PHD	25-Sep-98	142	138	8265-GL95
01-145-2528	WHITEHOUSE DUCT ASSY	20-Mar-98	141	129	8074-GK11
01-145-2528	DUCT ASSY	25-Feb-98	141	132	8055-GP39
01-147-3098	BDHI	28-May-98	135	130	8138-GM63
01-158-2647	THROTTLE QUADRANT	21-Jan-98	131	142	8015-GC71
01-170-7976	LAUNCH BAR	10-Jul-98	CVWP	141	8190-GW16
01-170-7976	STOP, NOSE TOW	10-Jul-98	CVWP	141	8190-GW16
01-196-9924	CIU	19-Mar-98	CVWP	142	8076-GC44
01-196-9924	CIU	25-Sep-98	142	138	8265-GL96
01-196-9924	CIU	18-Mar-98	CVWP	142	8076-GC44
01-196-9924	CIU	22-Sep-98	138	134	8265-GS89
01-196-9924	CIU	24-Mar-98	141	133	8082-GX88
01-196-9924	CIU	21-Sep-98	CVWP	141	8263-GW75
01-196-9924	CIU	09-Sep-98	CVWP	138	8251-GL38
01-197-7907	AFT RELAY BOX	11-Feb-98	128	140	8041-GU92
01-197-7912	FAULT PANEL	24-Mar-98	CVWP	142	8083-GC22
01-203-3480	ARC-182	08-Jun-98	CVWP	138	8156-GL20
01-205-3007	ENCODER ASSY	05-Jun-98	128	132	8154-GP63
01-205-3007	ENCODER	24-Apr-98	128	132	8112-GP40
01-205-3007	ENCODER ASSY	24-Mar-98	141	142	8081-GC03
01-205-3007	ENCODER	06-Feb-98	142	133	8037-GX58
01-205-3007	ENCODER	04-Dec-97	128	132	7329-GP97
01-225-8873	RELAY	03-Oct-97	128	134	7275-GS02
01-242-3803	ASN-123	20-Jan-98	141	132	7357-GP87
01-242-3803	ASN-123	25-Nov-97	141	130	7316-GM84
01-242-6450	NAV COMPUTER	06-Feb-98	141	133	8036-GX53
01-242-6450	DP	29-Jul-98	CVWP	141	8209-GW11
01-242-6450	123 COMPUTER	14-Nov-97	139	133	7231-GC92
01-242-6450	123 COMPUTER	17-Oct-97	133	132	7231-GC92
01-259-6607	BD 7 VAR ATTENUATOR	22-Jan-98	141	132	7330-GC06

01-272-7711	BRACKET	27-Oct-97	CVWP	139	7298-GV32
01-280-1609	CDI	29-Apr-98	137	133	8119-GX58
01-280-1609	CDI	20-Mar-98	141	133	8078-GX78
01-280-1609	CDI	25-Oct-97	142	139	7297-GV33
01-280-1609	CDI	25-Mar-98	130	133	8083-GX05
01-284-5165	STABILIZER	04-Nov-97	128	133	7286-GP92
01-284-5165	STBD STAB	16-Oct-97	133	132	7286-GP92
01-287-2762	RELAY BOX	29-Apr-98	137	131	8118-GN78
01-287-2762	RELAY ASSY	14-May-98	135	137	8133-G958
01-291-0250	BRACKET	14-May-98	CVWP	129	8084-GM99
01-293-7659	CRANK ASSY	28-Jul-98	CVWP	129	8150-GK06
01-293-7660	BELL CRANK	11-Sep-98	CVWP	135	8254-GT31
01-299-1542	ARC-182	15-Sep-98	CVWP	130	8258-GM06
01-299-1542	CONTROL BOX	25-Mar-98	130	139	8076-GV63
01-299-1542	CONTROL BOX	09-Jun-98	CVWP	139	8155-GV74
01-299-1542	CONTROL BOX	05-Jun-98	CVWP	130	8156-GM17
01-299-1542	HAVEQUICK CONTROL	15-May-98	CVWP	131	8125-GN92
01-299-1542	ARC-182	09-Jul-98	CVWP	130	8166-GM31
01-299-1542	ARC-182	04-Jun-98	CVWP	130	8152-GM07
01-299-7150	RELAY BOX	04-Aug-98	CVWP	CV70	8212-G403
01-299-7150	RELAY ASSY	13-Aug-98	135	141	8216-GW59
01-299-7150	ARC-182 RELAY	03-Feb-98	141	139	7356-GV16
01-312-3202	AFT FUEL PROBE	23-Jun-98	138	135	8174-GT80
01-322-4345	PS3 MANIFOLD	08-May-98	AIMD	129	8127-GK03
01-322-4345	PS3 LINE	21-Apr-98	AIMD	138	8111-GL31
01-323-3337	FAIRING ASSY	28-Jul-98	SDLM	129	8173-G641
01-337-4691	AYK-14	13-Mar-98	141	142	8069-GC76
01-337-4691	AYK-14	13-Apr-98	128	130	8077-GC63
01-337-4691	AYK-14	23-Mar-98	130	142	8077-GC63
01-337-4691	AYK-14	29-Apr-98	135	141	8069-GC76
01-337-4691	AYK-14	06-Feb-98	142	129	8036-GK15
01-337-4691	AYK-14	13-Mar-98	131	128	8036-GV80
01-337-4691	AYK-14	10-Mar-98	131	132	8069-GP55
01-337-4691	AYK-14	20-Feb-98	128	139	8036-GV80
01-337-4691	AYK-14	19-Mar-98	139	132	8074-GP84
01-337-4691	AYK-14	25-Feb-98	131	135	8055-GT77
01-341-1625	HARM CONTROL PANEL	20-Mar-98	CVWP	142	8064-GC44
01-341-1625	HCP	25-Sep-98	CVWP	141	8266-GW19
01-341-1625	HARM CONTROL PANEL	28-Sep-98	CVWP	141	8269-GW68
01-342-5876	RELAY ASSY	14-Sep-98	140	129	8240-GN55
01-342-5876	RELAY ASSY	24-Aug-98	SDLM	141	8230-GW48
01-342-5876	ARC-182 RELAY BOX	03-Nov-97	141	135	7307-GT65
01-342-5876	ARC-182	11-Sep-98	140	130	8239-GM12
01-342-8983	ANN PANEL	29-Apr-98	CVWP	131	8119-GN80
01-345-1321	VALVE, ROTARY	11-Feb-98	CVWP	140	8041-GV91
01-356-1662	PRESS RATIO CNTRL	31-Oct-97	CVWP	132	7304-GP91

01-356-1662	PRC	20-May-98	AIMD	138	8139-GL73
01-356-1662	PRC VALVE	03-Jun-98	CVWP	130	8153-GM14
01-356-1662	PRC	26-May-98	CVWP	135	8146-GT35
01-356-1662	PRC	24-Jun-98	CVWP	133	8174-GX05
01-356-1662	VANE CONTROL	22-Jul-98	CVWP	129	8202-GF09
01-356-1662	PRC	23-Feb-98	CVWP	129	8053-GK52
01-413-3351	CIU/E	11-Dec-97	140	train	7345-BK16
01-413-3351	CIU/E	11-Dec-97	140	TRNR	7345-BK16
01-413-3351	DATA CONVERTER	30-Sep-98	140	141	8269-GW65
01-415-5770	EFIS CONTROL	21-Apr-98	128	135	8098-GT80
01-415-5770	CONTROL PANEL	28-Jul-98	SDLM	129	8198-GW65
01-415-5770	EFIS CONTROL BOX	25-Feb-98	CVWP	132	8055-GP29
01-415-5770	EFIS CONTROL BOX	17-Oct-97	CVWP	139	7290-GV01
01-415-5779	EADI	28-May-98	135	130	8138-GM62
01-415-5779	EFIS INDICATOR	21-Apr-98	128	135	8098-GT83
01-415-5779	EADI	01-Dec-97	142	130	7333-GM17
01-415-5779	EADI	22-Oct-97	CVWP	142	7294-GC13
01-415-5779	EFIS IND (EHSI)	29-Apr-98	135	141	8104-GW92
01-415-5779	EFIS INDICATOR	21-Sep-98	CVWP	138	8261-GL78
01-415-5779	EADI	16-Apr-98	128	139	8105-GV94
01-415-5779	EADI	03-Dec-97	CVWP	133	7337-GX34
01-415-5779	EFIS EADI INDICATOR	17-Nov-97	CVWP	134	7314-GS29
01-415-5779	EADI	20-Feb-98	CVWP	139	8049-GV37
01-415-5779	EFIS EADI	28-Jul-98	CVWP	128	8208-GF31
01-415-5779	EADI	25-Feb-98	CVWP	130	8056-GM40
01-415-5779	EADI	11-Aug-98	CVWP	128	8223-GF87
01-415-5779	EADI	16-Dec-97	CVWP	129	7349-GK54
01-415-5779	EADI	24-Nov-97	CVWP	133	7323-GX03
01-415-5779	EADI	26-Nov-97	CVWP	130	7329-GM14
01-415-5779	EFIS IND (EADI)	29-Apr-98	135	141	8104-GW83
01-415-5779	EADI	15-Dec-97	CVWP	135	7344-GT58
01-415-5779	EADI	04-Dec-97	140	133	7337-GX35
01-415-5779	INDICATOR DIGITAL	25-Nov-97	CVWP	133	7325-GX08
01-415-8947	DIGITAL COUPLER	07-Aug-98	CVWP	128	8218-GF81
01-439-3220	USQ-113	11-Sep-98	CVWP	128	8177-GN97
01-439-3220	OPERATOR CONTROLLER	17-Nov-97	133	134	7320-GS63
01-441-1701	A/C PANEL	18-Mar-98	141	133	8071-GX15
01-441-1701	A/C PANEL	19-Mar-98	141	133	8078-GX76
01-448-1056	BD 10 OSCILLATOR	26-Jan-98	CVWP	142	8022-GC45
01-449-0721	RADOME	20-Apr-98	128	138	8099-GL09
0J52P-408A	EA6B ENGINE	06-Mar-98	142	129	8061-GK66
1128AM40506	PUSHROD ASSY	10-Mar-98	CVWP	134	8050-GS67
1128BM42007-1	UPLOCK FITTING	17-Jul-98	SDLM	131	8197-GN42
1128BM42151-1	NLG SUPPORT	17-Jul-98	SDLM	131	8197-GN43
1128lm40306-1	LATCH SUPPORT	17-Jul-98	SDLM	131	8197-GN44
99-371-0380	DSDC	21-May-98	CVWP	132	8140-GP63

99-371-0380	DSDC	01-Jul-98	CVWP	133	8181-GX05
99-371-0380	CONVERTER	30-Apr-98	CVWP	141	8114-GW82
99-371-0380	DSDC	02-Oct-97	CVWP	134	7275-GS06
99-371-0380	DSDC	08-Jun-98	CVWP	139	8158-GV94
99-371-0380	DSDC	21-May-98	CVWP	141	8141-GW02
99-891-9990	SCADC	14-May-98	CVWP	135	8119-GT09
99-894-8181	SCADC MOUNT	22-Apr-98	CVWP	135	8111-GT34
99-998-8719	COMPUTER	23-Feb-98	CVWP	130	8053-GM34
ASIGN-2122	RECORDER REP	25-Feb-98	128	135	8055-GT72
J52-P-408A	ENGINE	17-Apr-98	128	141	8103-GW82
J52-P-408A	ENGINE	17-Apr-98	137	138	8097-GL02
J52-P-408A	ENGINE	20-Apr-98	128	138	8097-GL01
J52-P-408A	ENGINE	27-Apr-98	137	133	8117-GX45
LL-298-M741	BAND 10 CONVERTER	13-Nov-97	131	134	7315-GS41
LL-CRG-N68	UPLOCK BRACKET	31-Oct-97	CVWP	141	
LL-Z98-M740	LOCAL OSCILLATOR	03-Dec-97	CVWP	140	7302-GU01
LL-Z98-M743	FRONT SECTOR	19-Nov-97	131	134	7315-GS40

Cannibalized Parts from Squadron VAQ-129 only

NIIN	NOMEN	DATE	FROM	TO	DOC NUMBER
00-006-0439	CYLINDER ASSY	25-Mar-98	129	131	8069-GX86
00-021-7145	CABIN SHUTOFF VALVE	31-Mar-98	129	130	8088-GM10
00-060-5891	RF COMBINER	02-Apr-98	129	128	8091-GF70
00-082-7587	VALVE	01-Dec-97	129	131	7321-GN34
00-087-6581	VALVE SHUT/OFF	01-Dec-97	129	132	7328-GP82
00-087-6581	VALVE SHUTOFF	02-Dec-97	129	132	7328-GP82
00-103-4450	MAIN LANDING GEAR	28-May-98	129	133	8147-GX01
00-106-9554	APC AMP	10-Jun-98	129	139	8159-GV06
00-109-6231	STABILIZER ASSY	14-Sep-98	129	131	8244-GN65
00-110-6130	ARC-105	26-Mar-98	129	142	8084-GC42
00-110-6130	ARC-105 COUPLER	11-Sep-98	129	128	8246-GF52
00-132-3170	DOOR LANDING	25-Mar-98	129	130	8082-GM75
00-132-3170	MLG DOOR	10-Sep-98	129	135	8253-GT27
00-132-3170	PORT MLG DOOR	21-Sep-98	129	141	8263-GW70
00-132-3178	DOOR LANDING	02-Apr-98	129	133	8086-GX18
00-140-3492	ANTI-ICE CONTROL PANEL	13-May-98	129	137	8118-G940
00-140-3492	DEFOG PANEL	03-Feb-98	129	139	8020-GV10
00-146-6950	CONTROL	21-Oct-97	129	132	7289-GP15
00-150-6986	LOX IND	04-Aug-98	129	CV70	8203-G489
00-151-6936	SCREW CLOSE	07-Jul-98	129	141	8169-GW30
00-152-2655	DAMPER WHEEL	01-Dec-97	129	142	7296-GV27
00-152-2655	SHIMMY DAMPNER	22-Jun-98	129	135	8171-GT65
00-152-2655	DAMPER WHEEL	02-Dec-97	129	142	7296-GV27

00-152-2661	DEFOG VALVE ASSY	25-Feb-98	129	132	8055-GP24
00-152-2743	BRAKE	30-Jun-98	129	134	8180-GS23
00-152-2743	BRAKE	11-Jun-98	129	132	8154-GP60
00-152-2743	BRAKE ASSY	22-Jun-98	129	137	8167-G901
00-152-2743	BRAKE	28-May-98	129	132	8146-GP89
00-152-2743	BRAKE	13-Jul-98	129	130	8194-GM01
00-152-2743	BRAKE	11-Jun-98	129	128	8157-GF83
00-157-3971	AFT TURBINE	15-Dec-97	129	142	7303-GC23
00-163-5829	EJECTION BLEED HOSE ASSY	03-Apr-98	129	136	8091-G608
00-163-5829	HOSE ASSY	14-Sep-98	129	137	8253-G902
00-168-7820	BEACON RCVR	07-May-98	129	131	8061-GC14
00-169-0585	CANOPY SEAL VALVE	03-Feb-98	129	139	8012-GV85
00-179-5086	BARO ALT	09-Jan-98	129	140	8009-GU18
00-205-2253	AFT CANOPY ASSY	13-Jan-98	129	139	7314-GV79
00-238-7051	PIN ASSY	10-Aug-98	129	137	8218-G909
00-279-9391	PACKING	28-May-98	129	133	8147-GX87
00-303-6103	COUPLING ASSY	26-Mar-98	129	128	8085-GF54
00-332-3935	RADOME	18-Dec-97	129	128	7339-GF28
00-332-3935	RADOME	03-Oct-97	129	142	7253-GC77
00-332-3935	NOSE RADOME	19-Feb-98	129	141	8036-GX55
00-332-3935	RADOME	03-Oct-97	129	130	7265-GC35
00-332-3935	RADOME	04-Mar-98	129	133	8040-GK60
00-410-6231	RUDDER TRIM ACTUATOR	13-Apr-98	129	130	8102-GM64
00-410-6231	ACTUATOR	22-Sep-98	129	138	8264-GL93
00-414-7817	PT AFT SHOULDER PANEL	29-Jul-98	129	136	8209-G600
00-415-7985	RESERVOIR	18-Jun-98	129	135	8167-GT32
00-415-7985	RESERVOIR	25-Mar-98	129	131	8081-GC02
00-418-2388	STBD MLG DOOR	10-Sep-98	129	135	8238-GT50
00-418-2390	SLAT ASSY	09-Jun-98	129	133	8159-GX39
00-418-2390	SLAT ASSY	07-Jul-98	129	141	8170-GW35
00-419-6152	MASTER LIGHTS	14-Sep-98	129	130	8256-GM93
00-421-4628	FITTING CONTROL	07-May-98	129	139	8121-GV47
00-421-4667	SLAT ASSY	10-Jun-98	129	135	8117-GT77
00-421-4667	SLAT ASSY	28-May-98	129	128	8089-GP15
00-421-4667	PORT OUTBD SLAT	14-May-98	129	130	8125-GM21
00-421-4667	SLAT ASSY	11-Sep-98	129	138	8254-GL50
00-421-4667	SLAT ASSY	04-Sep-98	129	138	8246-GL28
00-451-6481	DOOR ASSY	04-Dec-97	129	131	7328-GN45
00-465-2370	NOSE STRUT	02-Jun-98	129	135	8134-GT09
00-480-3247	VHF CONTROL RAD	03-Feb-98	129	133	8021-GX57
00-480-3247	VHF CONTROL PANEL	30-Sep-98	129	134	8269-GS03
00-480-3247	RADIO CONTROL	27-May-98	129	133	8138-GX61
00-483-1844	BIRDCAGE CYLINDER	18-Dec-97	129	128	7281-GP79
00-499-4322	VALVE	03-Aug-98	129	141	8212-GW40

00-501-9874	SHEAR BOLT	11-Sep-98	129	135	8254-GT32
00-567-5142	SOLENOID VALVE	17-Apr-98	129	141	8060-G647
00-575-3469	RP INDICATOR	25-Nov-97	129	139	7325-GV40
00-575-3469	RPM IND	15-Jun-98	129	128	8154-GF58
00-575-3469	RPM IND	03-Oct-97	129	134	7276-GS11
00-658-3209	SENSOR, TEMP	04-Nov-97	129	133	7304-GX49
00-758-2539	STRIKER PLATE	17-Oct-97	129	132	7289-GP16
00-758-8090	DOOR ASSY	23-Mar-98	129	142	8076-GC46
00-759-8492	ASN-50 PWR SUPPLY	09-Jan-98	129	140	8008-GU17
00-759-8492	ASN-50 PWR SUPPLY	01-Jul-98	129	133	8181-GX04
00-803-2767	IPI	02-Oct-97	129	134	7275-GS03
00-844-1420	CHECK VALVE	01-Sep-98	129	128	8244-GF31
00-868-4353	FLAP ASSY	09-Oct-97	129	140	7282-GU84
00-871-0592	TRANSMITTER	04-Aug-98	129	141	8211-GW33
00-880-1955	HF/RT ARC-105	24-Dec-97	129	133	7349-GX87
00-880-1955	ARC-105	03-Feb-98	129	133	8033-GX35
00-905-0844	AMP BOX	29-Jun-98	129	133	8099-GX49
00-920-8878	TOTAL TEMP PROBE	15-Jun-98	129	135	8152-GT47
00-948-0545	HEAT SHROUD	25-Aug-98	129	134	8236-GS44
00-948-0545	SHROUD ASSY	10-Sep-98	129	135	8231-GT16
00-970-3760	VALVE ASSY	18-May-98	129	131	8138-GN58
00-971-2668	SHAFT ASSY	13-Jan-98	129	139	7309-GW12
00-971-2668	SHAFT ASSY	02-Jul-98	129	141	8163-GW60
00-971-2727	SEAL	28-May-98	129	130	8147-GM95
00-971-3732	FITTING MOUNT	18-May-98	129	131	8136-GN57
00-984-1084	ACCELEROMETER	05-Jun-98	129	132	8156-GP75
01-016-6435	ASN-50 GYRO	02-Feb-98	129	128	8032-GF17
01-021-8686	RUDDER	30-Jun-98	129	136	8169-G629
01-021-8686	RUDDER ASSY	09-Sep-98	129	137	8251-G908
01-023-3210	PANEL ASSY	12-Aug-98	129	134	8219-GS04
01-023-3532	BD 5/6 RCVR	30-Sep-98	129	134	8269-GS99
01-023-3532	BAND 5/6 RCVR	26-Mar-98	129	142	8084-GC41
01-023-3532	BAND 5/6 RCVR	16-Jan-98	129	133	8014-GX04
01-023-3532	BD 5/6 RCVR	18-Mar-98	129	133	8076-GX54
01-023-3533	BAND 8/9B RCVD	25-Mar-98	129	142	8084-GC34
01-023-3533	BAND 8/9B RECEIVER	20-Feb-98	129	130	8049-GM10
01-023-3533	BD 8/9 RCVR	23-Mar-98	129	139	8077-GV85
01-023-3533	BD 8/9 RCVR	21-Apr-98	129	132	8105-GP86
01-023-3535	BAND 4 RCVR	16-Jan-98	129	133	8014-GX03
01-023-3619	PWR SUPPLY	01-Jul-98	129	133	8181-GX09
01-024-0143	BD 8/9 SFE	13-Aug-98	129	137	8224-G941
01-024-0143	BD 8/9	11-Sep-98	129	138	8254-GL54
01-027-8227	LINEAR VALVE	18-May-98	129	132	8134-GP39
01-038-2492	RADIO FILTER	03-Feb-98	129	133	8033-GX36

01-043-9832	ICS CONTROL BOX	27-Mar-98	129	133	8086-GX09
01-043-9832	ICS CONTROL BOX	18-Mar-98	129	133	8075-GX45
01-043-9832	ICS CONTROL BOX	28-Apr-98	129	133	8114-GX33
01-060-5049	AIR NAV COMPUTER	25-Sep-98	129	141	8265-GW08
01-060-5049	ANC	25-Oct-97	129	139	7298-GV94
01-060-5049	ANC	03-Sep-98	129	128	8245-GF42
01-060-5049	ANC	26-Jun-98	129	133	8177-GX31
01-067-8336	OIL PRESSURE	11-May-98	129	141	8128-GW53
01-067-8336	OIL PRESSURE XMITTER	29-Apr-98	129	133	8118-GX51
01-076-5204	CONTROL PANEL	04-Jun-98	129	137	8148-G994
01-077-6880	RADAR SEU-STABILIZER	05-Mar-98	129	132	8064-GP40
01-081-7945	RESERVOIR	25-Mar-98	129	131	8037-GV95
01-085-0348	CONTROL STICK	24-Nov-97	129	133	7321-GX75
01-089-9044	BELLCRANK	31-Oct-97	129	142	7303-GC26
01-091-2462	APC COMPUTER	14-Sep-98	129	130	8257-GM98
01-093-6689	PORT STABILIZER	10-Sep-98	129	130	8253-GM74
01-093-6689	STABILIZER	06-Jan-98	129	141	7345-GW72
01-097-1215	VALVE LINEAR	07-Jul-98	129	128	8177-GF09
01-138-8596	STINGER	13-Jan-98	129	142	8008-GC10
01-138-8596	DRAG LINK	26-Jan-98	129	135	8022-GT32
01-139-7385	PHD	22-Jun-98	129	133	8172-GX77
01-139-7385	PHD	07-May-98	129	131	8126-GN02
01-145-2528	DUCT ASSEMBLY	17-Feb-98	129	139	8043-GV20
01-145-2528	DUCT ASSY	21-Sep-98	129	140	8251-GU06
01-145-2528	DUCT ASSY	14-Sep-98	129	137	8251-G915
01-145-2528	DUCT ASSY	11-Aug-98	129	134	8222-GS09
01-145-2528	DUCT ASSY	06-Mar-98	129	133	8064-GX57
01-145-2528	DUCT ASSY	11-Sep-98	129	130	8251-GM58
01-145-2825	DUCT ASSY	28-May-98	129	130	8147-GM93
01-147-3098	BDHI	16-Jun-98	129	130	8166-GM29
01-190-6309	TRANSFORMER	24-Jun-98	129	128	8124-GF49
01-192-2913	LADDER LIGHT ASSY	11-Feb-98	129	140	8037-GU79
01-196-9924	CIU	11-Sep-98	129	138	8254-GL57
01-205-3007	ENCODER ASSY	24-Feb-98	129	142	8047-GC20
01-205-3007	ENCODER	11-Sep-98	129	138	8254-GL51
01-205-3007	ENCODER ASSY	03-Feb-98	129	133	8032-GX28
01-205-3007	ENCODER ASSY	24-Jul-98	129	141	8202-GW01
01-208-5389	BEARING	26-Jan-98	129	135	8022-GT30
01-242-3788	DDI	08-Jan-98	129	140	7352-GU21
01-242-6450	123 COMPUTER	29-Jul-98	129	128	8210-GF40
01-259-6607	ATTENUATOR	21-Jan-98	129	130	7308-GM73
01-274-3437	COMP. LOAD PNL	20-Jul-98	129	128	8169-GF66
01-280-1609	CDI	01-Jun-98	129	138	8152-GL12
01-280-1609	CDI	04-Aug-98	129	141	8216-GW55

01-280-1609	CDI	29-Apr-98	129	133	8119-GX57
01-280-1609	CDI	16-Mar-98	129	132	8072-GP02
01-283-6735	IPI	17-Jun-98	129	128	8167-GF41
01-284-5165	STBD STABILIZER	24-Dec-97	129	128	7356-GF58
01-293-7659	BELLCRANK	21-Sep-98	129	135	8254-GT31
01-319-5462	CSD EJECTOR	21-Apr-98	129	135	8104-GT18
01-319-5462	CSD EJECTOR	30-Jul-98	129	141	8201-GW79
01-319-5462	CSD EJECTOR	07-May-98	129	128	8092-GF72
01-323-3337	A/C FAIRING	07-Aug-98	129	128	8218-GF80
01-323-3337	FAIRING	30-Jun-98	129	136	8173-G641
01-324-0831	HF COUPLER RF LINE	24-Jun-98	129	130	8160-GM21
01-337-4691	AYK-14	26-Nov-97	129	135	7314-GT75
01-337-4691	AYK-14	01-May-98	129	142	8107-GC03
01-337-4691	AYK-14	25-Mar-98	129	139	8082-GX87
01-337-4691	AYK-14	29-May-98	129	138	8148-GL07
01-337-4691	AYK-14	08-Jan-98	129	140	8006-GU91
01-337-4691	AYK-14	24-Mar-98	129	133	8082-GX87
01-342-5845	FUEL SYS RELAY BOX	25-Jun-98	129	135	8176-GT16
01-342-5845	RELAY ASSY	11-Jun-98	129	128	8161-GF25
01-342-5876	RELAY ASSY	24-Aug-98	129	141	8230-GW48
01-342-5876	RELAY BOX	28-Aug-98	129	131	8240-GN55
01-350-4548	SCREW CLOSE	07-Jul-98	129	141	8170-GW37
01-356-1662	PRC VANE CONTROL	22-Jul-98	129	128	8202-GF09
01-360-3759	CONTROL INDICATOR	02-Apr-98	129	128	8090-GF66
01-360-3759	CONTROL INDICATOR	03-Apr-98	129	128	8093-GF75
01-360-8238	GPS IRU	21-Apr-98	129	132	8105-GP92
01-398-0438	VALVE ASSY	16-Jun-98	129	128	8166-GF36
01-415-5770	EFIS CONTROL	23-Apr-98	129	135	8112-GT47
01-415-5770	EFIS CONTROL PANEL	20-Aug-98	129	141	8222-GW75
01-415-5770	EFIS CONTROL PANEL	22-Jul-98	129	141	8198-GW65
01-415-5770	EFIS CONTROL PANEL	24-Aug-98	129	141	8224-GL55
01-415-5770	EFIS CONTROL PANEL	20-Aug-98	129	141	8232-GW54
01-415-5779	EADI	21-May-98	129	141	8141-GW01
01-415-5779	EADI	24-Sep-98	129	141	8263-GW69
01-415-5779	EFIS INDICATOR	06-May-98	129	141	8119-GW03
01-415-5779	EADI	07-Jul-98	129	138	8182-GL65
01-415-5779	EADI	09-Jul-98	129	133	8187-GX91
01-415-5779	EADI	13-Aug-98	129	137	8222-G921
01-415-5779	EFIS INDICATOR	21-Apr-98	129	135	8098-GT79
01-415-5779	EADI	23-Jun-98	129	135	8173-GT70
01-415-5779	EADI	11-May-98	129	141	8128-GW55
01-415-5779	EADI	16-Mar-98	129	130	8071-GM42
01-415-5779	INDICATOR	11-Aug-98	129	141	8211-GW28
01-415-5779	EADI	13-Aug-98	129	137	8222-G920

01-415-8947	DATABASE COUPLER	25-Mar-98	129	142	7324-GC65
01-433-3387	ACOUSTIC BEACON	02-Sep-98	129	131	8243-GN59
01-437-4579	MISC CONTROL BOX	22-Sep-98	129	133	8229-GX16
01-447-5993	BD 10 AMP	03-Aug-98	129	128	8207-GF30
01-449-0721	RADOME	28-Apr-98	129	133	8111-GX26
01-449-0721	RADOME	07-Jul-98	129	138	8181-GL59
01-449-0721	RADOME	08-Apr-98	129	131	8093-GN81
0J52P408A	ENGINE	07-Jul-98	129	128	8188-GF52
17-760-151	VALVE, TANK	17-Apr-98	129	141	8060-G647
CS-401-7215	SKIN ASSY	15-Sep-98	129	128	8257-GF81
J52-P-408A	ENGINE	08-Sep-98	129	137	8247-G994
J52-P408A	ENGINE	18-Aug-98	129	141	8229-GW29
LL-BHW-7909	COUPLING ASSY	10-Sep-98	129	135	8238-GT56
LL-CRG-M600	TEMP CONTROL PANEL	28-Apr-98	129	133	8116-GX40
LL-CRG-M600	AFT EQUIP OVERTEMP CONTL VALVE	18-Aug-98	129	134	8230-GS29
LL-TA1-6874	CABLE ASSY	20-Jan-98	129	133	8020-GX38
LL-TA1-6875	CABLE ASSY	20-Jan-98	129	133	8020-GX40
LL-TA1-6875	RF CABLE	25-Mar-98	129	128	8083-GF35
LL-TA1-6875	RF CABLE	25-Mar-98	129	128	8083-GF36
LL-TA1-6876	CABLE ASSY	20-Jan-98	129	133	8020-GX39
LL-TA1-6876	RF CABLE	25-Mar-98	129	128	8083-GF37
LL-TA1-6877	CABLE ASSY	20-Jan-98	129	133	8020-GX41
LL-TA1-6877	RF CABLE	25-Mar-98	129	128	8083-GF39
LL-TA1-6878	CABLE ASSY	20-Jan-98	129	133	8020-GX42
LL-TA1-6878	RF CABLE	25-Mar-98	129	128	8083-GF40
LL-TA1-6879	CABLE ASSY	20-Jan-98	129	133	8020-GX43
LL-TA1-8790	RF CABLE	25-Mar-98	129	128	8083-GF38

APPENDIX C. COMNAVAIRPAC FY-98 DEGRADER LISTS

Nomenclature	NIIN	Nomenclature	NIIN
REPAIRABLES:			
Port MLG Gear	00-132-3170	AYK 14	01-337-4691
STBD MLG Door	00-132-3178	Slat Assembly	00-412-4667
EADI	01-415-5779	Radome	01-449-0721
Port OUTBD Slat	00-421-4667	Valve, Fuel	00-919-0759
STBD INBD Slat	00-163-1962	Tape Cartridge	01-206-1842
STBD OUTBD Slat	00-418-2390	Slat Assembly	00-418-2390
Engine	J52-P-408A	Stabilizer	00-109-6231
Nav Control	01-320-0540	Radome	00-332-3935
Digital Coupler	01-415-8947	Cylinder Assembly	00-006-0439
Air Nav Computer	01-060-5049	Valve, Wing Tank	00-077-2864
RPM Indicator	00-575-3469	Canopy Aft	00-205-2253
Rudder	01-021-8686	Canopy Fwd	00-402-8651
Antenna	01-028-8804	Stabilizer	01-093-6689
ARC Relay	01-342-5876	Stabilizer	01-093-6691
Valve Assembly	00-021-7145	Dampner	00-152-2655
COMBNR Radio	00-060-5891	Dampner	00-970-6672
APC Amp	00-106-9554	Reservoir, Hydraulic	01-081-7945
LO Amplifier	01-447-5993	Flap, OUTBD	00-868-4351
Fuel Transmitter	00-871-0592	Flap Assembly	00-868-4353
Relay	01-299-7150	Stabilizer	01-284-5165
Nose Strut	00-465-2370	Flaperon	01-089-2223
Strut, Main land. Gear	00-103-4450	Stick Control	01-085-0348
Brake Assembly	00-152-2743	Turbine	00-010-7252
Sector Front	01-447-4558	Birdcage	00-483-1844
EFIS Controller	01-415-5770	Starter	00-038-1172
CONSUMABLES:			
Fairing	01-323-3337	Nut, Sleeve	00-603-0447
Shaft Assembly	00-971-2668	Pigtail	00-169-5547
CSD Ejector	01-319-5462	Inclinometer	01-415-5775
Screw	01-350-4548	Antenna	01-259-6559
Accelerometer	00-984-1028	Footrest Assembly	00-243-4662
Pin	00-238-7051	Amplifier	00-905-0844
Insulation Blanket	01-272-8419	Packing	00-122-5723
Hose Assembly	00-163-5829	Stinger	01-138-8596
Fuel Probe	00-432-2894	Antenna	01-174-0622
Switch	00-083-1485	Float Switch	00-150-6471
Shroud	00-948-0545	Cable	00-617-9291
Connector	01-415-5776	Handle	99-253-0780
Canopy Seal	00-403-3082	A/C Shield	01-024-8803
Printed Wire	00-489-0665	Interior Light	00-232-7914
Temp. Sensor	01-027-8878	Cable Assembly	00-760-5726

MSG CVWP, SUPPLY DTG 022138 OCT 98

Cylinder Valve	01-027-8227	Hose, Special	01-147-2904
Insulation Blanket	01-273-1760	Bullet Assembly	00-451-8172
Cable Assembly	01-324-0831	Heat Exchanger	01-327-3684
Fitting	00-971-3731	Nut, Sleeve	00-786-2302
Harness Assembly	01-164-9555	Temp. Sensor	00-658-3209
Fitting	00-971-3625	Valve, Solenoid	00-950-3404
Cable Assembly	01-271-1047	Panel	01-366-3121
Hose, Air Duct	01-038-1498	Wave-guide	00-415-7460
Connector	00-607-9021	Clamp	00-479-9982
Clamp	00-250-8431	Crank	01-293-7659
Transformer	01-190-6309	Hose Assembly	00-229-9146
Blanket Assembly	00-421-4632	Rod, Adjustable	00-149-8036
Nozzle, Rain	01-259-6707	Spring, Dras	00-470-5315
Bearing Rod	00-088-2149	Hose Assembly	00-005-5509

APPENDIX D. NADEP JACKSONVILLE EA-6B CANNIBALIZATION LIST BY ACCENDING NOMENCLATURE UPDATED 9/23/98

NOMEN	P/N	NIN	DOC	QTY	SQD	USER STATUS	USER REMARKS	NADEP STATUS
BLEED AIR DUCT	1128EC41127-3	00-232-8044	VO9114-6075-G707		M14		R/O 7133-G720	N/A
BRACKET, RH	1128KN40516-12	LL-CRG-3322	NOO620-6156-GK41	1	129			N/A
CYLINDER,ASSY	1128H40053-3	00-421-7732	NOO620-6163-GX96	1	133	CNX	SUPPLY FILLED	N/A
DOOR ASSY		00-202-7029	N65886-6243-20Q7		NFK			N/A
FAIRING ASSY	1128AV43184-1	01-193-3812	N65886-6243-23Q9		NFK			N/A
FLAP SWITCH BOX	D504M5	00-068-1557	NOO620-6263-GU31	1	140	CNX BY CVWP	SUPPLY FILLED	N/A
LOX QTY IND	1128SCAV698-1	00-150-6986	N00620-6213-GW04	1	141	RCVD		N/A
MLG FWD DOOR, UP,RH	1128B40900-24	00-132-3178	VO3365-6250-G849		Q			N/A
MOTOR ALTERNATING	128SCAM100-213	00-181-9556	NOO620-6220-GK62	1	129		SUPPLY FILLED	N/A
TAILPIPE, (WRONG LH)	1128P41500-51	00-109-5787	NOO620-6085-GT62	1	135		R/O 6309-GT6B	RCVBD 06/05/97
CAC	142140-01-01	00-906-0598	V09114-7127-G782	1	M14			RCVD 08-18-97
FUEL DUMP VALVE			N00620-8165-GK31	1	129			RCVD 24JUN98
PANEL ASSY	1128AV43218-1	01-366-3121	NOO620-6142-GN55	1	131	CNX	R/O 6309-BK74	RCVD 01/22/97
FLAP ASSY, OUTBD, RH	128CS10006-8	00-868-4353	NOO620-6282-GUO5	1	140		R/O 7293-BK84	RCVD 02/18/98
SLAT ASSY, INBD, RH	1128CS10009-22	00-163-1962	NOO620-6240-GU72	1	140	RCVD 09/27/96	R/O 7293-BK85	RCVD 02/18/98
MOTOR ALTERNATING	58425-2	00-181-9556	N00620-7225-GS63	1	W		R/O 7336-BK75	RCVD 03/09/98
MOTOR ALTERNATING	58425-2	00-181-9556	N00620-7226-GS70	1	W		R/O 7260-GM68	RCVD 03/09/98
LOX QTY IND	1128SCAV698-1	00-150-6986	RO9112-6212-GG60	1	134	CNX	R/O 6291-BK86	RCVD 03/10/97
TAILPIPE, RH	1128P41500-52	00-109-5766	NOO620-6039-GW19	1	141	CNX	R/O 6260-GK02	RCVD 03/10/97
TAILPIPE, RH	1128P41500-52	00-109-5766	NOO620-6093-GX32	1	133	CNX	R/O 6116-GK65	RCVD 03/10/97
CONVERTER,DSDC, EFIS	53-020-03	99-371-0380	N00620-7154-GV08	1	W	TRANSFER DOC	N00620-7101-GL41	RCVD 03/11/98
RADOME, NOSE	1128B40005-19	00-332-3935	N00620-7113-G937	1	129	RCVD 06/16/97		RCVD 03/11/98
RADOME,NOSE	1128B40005-19	00-332-3935	N00620-7176-GT79	1	W			RCVD 03/27/98
SLAT ASSY, INBD, RH	1128CS10009-22	00-163-1962	NOO620-6123-GK42	1	129	CNX	R/O 6309-BK73	RCVD 03/27/98
MASTER CAUTION LITE	L20050803AC	00-418-6223	V09114-7210-G762	1	M14			RCVD 04/06/98
PRESS. REG. DEFOG	D76C13	00-152-2661	VO9114-6130-G941		M14			RCVD 04/08/97
MLG UPLOCK CYLINDER	1128H40058-3	00-421-4542	VO9114-6144-G963		M14			RCVD 04/10/97
PRESS. REG. DEFOG	D76C13	00-152-2661	VO9114-6133-G944		M14			RCVD 04/10/97
LOX QTY IND	1128SCAV698-1	00-150-6986	NOO620-6200-GK01	1	129	CNX	R/O 6107-BK72	RCVD 04/14/97
SLAT ASSY, INBD, RH	1128CS10009-22	00-163-1962	N0620-8090-GT27	1	VAQ			RCVD 04/17/98
ACTUATOR, MECH	128SCAM101-353	00-570-6196	NOO620-6275-GX35	1	133			RCVD 04/24/97
DRAG LINK, NLG	1128LM40204-1	00-419-4390	NOO620-6351-GK52	1	129	RCVD 7085		RCVD 05/05/97
CSD EJECTOR	1128P41538-5	01-319-5462	NOO620-6162-GK40	1	129			RCVD 05/06/97
RELAY ASSY,	1128AV43193-23	01-342-5876	NOO620-7016-G916	1	140	NOT RCVD		RCVD 05/06/97
SWITCH	10800GN3-8	01-254-2148	NOO620-6299-GK28	1	129		SUPPLY FILLED	RCVD 05/12/97
VALVE SPECIAL	1FA01003-1	00-169-0535	NOO620-6169-GX06	1	133	CNX	R/O 6134-GX09	RCVD 05/13/97
DRAG BRACE, NOSE	1706-73	00-409-6755	NOO620-6339-GN65	1	131	RCVD		RCVD 05/16/97
BOLT, SHOULDER	1706-221	00-434-6666	NOO620-7030-GN24	1	129	RCVD		RCVD 05/20/97
BOLT, SHOULDER	1706-221	00-434-6666	NOO620-7038-GN28	1	131	CNX	R/O 7045-GN99	RCVD 05/20/97
CADT	204820	00-444-3325	NOO620-6128-GK13	1	129			RCVD 05/20/97
CANOPY ACT, FWD	1128N40050-5	00-006-0440	NOO620-6064-GK48	1	129	RCVD		RCVD 05/20/97
CRANK ASSY, LH	128L10033-3	01-293-7659	N00620-6346-GK21	1	129	RCVD		RCVD 05/20/97

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NOMEN	P/N	NIN	DOC	QTY	SQD	USER STATUS	USER REMARKS	NADEP STATUS
CRANK ASSY, LH	128L10033-3	01-293-7659	NO0620-7034-G227	1		RCVD		RCVD 05/20/97
CRANK ASSY, LH	128L10033-3	01-293-7659	RO9112-7038-G289	1	133	RCVD		RCVD 05/20/97
DRAG LINK,	1706-95	00-409-6766	NO0620-7038-GN29	1	131	RCVD 7057		RCVD 05/20/97
DRAG LINK,	1706-88	00-409-6763	NO0620-7038-GN27	1	131	RCVD 7057		RCVD 05/20/97
PIVOT PIN,	1706-245	00-465-2352	NO0620-7038-GN31	1	131	RCVD 7057	R/O 7154-BK82	RCVD 05/30/97
SENSING UNIT	027-047-014	01-312-3202	NO0620-6284-GK54	1	129	RCVD		RCVD 05/30/97
FLAP ASSY, OUTBD, LH	128CS10006-7	00-868-4351	NO0620-6242-GT45	1	135	CNX	R/O 7079-BK57	RCVD 06/02/97
CANOPY ACT, AFT	1128N40051-7	00-006-0439	NO0620-6180-GK18	1	129	RCVD	R/O 7133-BK81	RCVD 06/04/97
FLAP ASSY, OUTBD, LH	128CS10006-7	00-868-4351	NO0620-6282-GU06	1	140			RCVD 06/08/97
FLAP ASSY, OUTBD, LH	128CS10006-5	01-339-9171	NO0620-6358-GN43	1	131	RCVD	CHG 6143-GK25	RCVD 06/13/97
MLG FWD DOOR, UP, LH	1128B40900-23	00-132-3170	VO3365-6229-G840		Q	V03369	R/O 8191-GX52	RCVD 07/23/98
MLG FWD DOOR , UP, LH	1128B40900-23	00-132-3170	VO3365-6230-G855		Q		R/O 7036-3U07	RCVD 08/03/98
MLG FWD DOOR, UP, L/H	1128B40900-23	00-132-3170	V03365-6230-G855	1	M14			RCVD 08/03/98
MLG FWD DOOR, UP, RH	1128M40900-24	00-132-3178	VO3365-6259-G823		Q		R/O 8034-G967	RCVD 08/03/98
FLAP ASSY, OUTBD, RH	128CS10006-7	00-868-4353	NO0620-6199-GK36	1	129			RCVD 08/07/97
TAILPIPE, LH	1128P41500-51	00-109-5787	NO0620-6113-GS36	1	134			RCVD 08/07/97
LANDING GEAR HANDLE	1128AV43077-3	LP-000-1921	NO0620-6185-GX50	1	133	RCVD	R/O 7135-BK52	RCVD 08/20/98
MISSION COMPUTER	13213591-02	01-337-4691	V09114-7282-G981	1	M14			RCVD 08/20/98
ACCELEROMETER, TRANS	615794-4	00-984-1028	NO0620-7029-GN06	1	131	RCVD 03/03/97	R/O 7133-BK85	RCVD 08/21/97
SLAT TRACK INBD R/H	1128CSM46500-11	00-243-4383	N00620-7185-GP41	1	132	RCVD 08/11/97		RCVD 08/28/97
DAMPER ASSY	25-015	00-970-6672	N00620-7325-GK12	1	VAQ			RCVD 08/31/98
RADIO,COMBINER	265537-2	00-060-5891	N00620-8144-GK53	1	VAQ			RCVD 08/31/98
CRANK ASSY, LH	128L10033-3	01-293-7659	NO0620-7017-GK12	1	129	RCVD		RCVD 09/09/97
EFIS CONTROL PANEL	071-01439-3300	01-415-5770	N00620-8224-GL55	1	VAQ			RCVD 09/09/98
FITTING	128BM10975-1		N00620-8181-BK54	1	VAQ			RCVD 09/09/98
NLG UPLOCK FITTING	1128BM42007-1	LXNQ26206	N00620-8197-GN42	1	VAQ	MD SOURCE CODED	NEED TO BE MANUFA	RCVD 09/09/98
MLG FWD DOOR , UP, R/H	1128B40900-24	00-132-3178	V09114-7091-G142	1	M14			RCVD 09/10/98
FLAP ASSY,OUTBD,RH	128CS10006-8	00-868-4353	R03364-7225-GT90	1	131			RCVD 09/12/97
MLG ASSY RH	1707800-2	00-103-4452	N00620-7212-GS80	1	134			RCVD 09/22/97
MLG FWD DOOR, UP, LH	1128B40900-23	00-132-3170	NO0620-6250-GX71	1	133	RCVD		RCVD 1/24/1997
MLG FWD DOOR, UP LH	1128B40900-23	00-132-3170	R03364-7236-G542	1	131			RCVD 10/15/97
MOTOR ALTERNATING	58425-2	00-181-9556	N00620-7117-GK21	1	W		R/O 7258-GS48	RCVD 10/16/97
NLG DOOR ASSY, LH	128B11405-3	00-971-2552	N00620-6219-GK24	1	129	RCVD		RCVD 10/2/1996
SCREW, CLOSE	1128CSM46504-11	00-151-6936	NO0620-6057-GS98	1	134	RCVD	NA	RCVD 10/28/1996
EGT IND	1128SCAV832-9	00-149-1600	RO9112-6193-GG74	1	134	RCVD	NA	RCVD 11/04/1996
SWITCH	4451-1	01-254-2148	NO0620-6299-GK27	1	129		SUPPLY FILLED	RCVD 11/04/96
RADOME ASSY	1128B40005-19	00-332-3935	N00620-6339-GN74	1	131	RCVD 02/04/97		RCVD 11/06/97
CADT	204820	00-444-3325	NO0620-6115-GK02	1	129		NA	RCVD 11/08/1996
VALVE ASSY, PNEUMATIC	35980-7	00-152-2556	NO0620-6122-GS88	1	134	CNX	R/O 6253-GU12	RCVD 11/08/96
CRANK ASSY, LH	128L10033-3	00-163-6308	N00620-6252-GK38	1	129	RCVD	NA	RCVD 11/12/1996
AMMETER	20337-2B	00-938-8784	NO0620-6071-GK27	1	129	NOT RCVD	NA	RCVD 11/4/1996
FUEL FLOW IND	1128SCVA831-9	00-126-5072	RO9112-6212-GG59	1	134	RCVD	NA	RCVD 11/4/1996
INSULATION LINE	1128EC40161-5	00-868-4752	NO0620-6024-GK06	1	129	RCVD	NA	RCVD 11/4/1996
TAILPIPE, LH	1128P41500-51	00-109-5787	NO0620-6093-GK30	1	129		NA	RCVD 11/4/1996
PITOT STATIC	856CD4	00-495-0770	NO0620-6079-GM39	1	130	RCVD	NA	RCVD 11/8/1996

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NOMEN	P/N	NIN	DOC	QTY	SQD	USER STATUS	USER REMARKS	NADEP STATUS
DIFF. PRESS. SENSOR	107406-1-1	00-152-0938	NOO620-6120-GK24	1	129	CNX	R/O 6304-BK68	RCVD 12/04/96
MLG FWD DOOR, UP, LH	1128B40900-23	00-132-3170	NOO620-6148-GX46	1	133	RCVD	R/O 7153-BK81	RCVD 12/08/97
ENG HEAT SHROUD	128P10449-2	00-971-2699	VO9114-6247-G159		M14			RCVD 12/13/96
ROD ASSY	1128L40507-1	00-243-4389	NOO620-6156-GK32	1	129	RCVD	NA	RCVD 2/18/1997
CANOPY ACT, FWD	1128N40050-5	00-006-0440	NOO620-6179-GX39	1	133	RCVD	NA	RCVD 2/28/1997
COVER, ACCESS	128B11550-4	00-478-2796	NOO620-6029-GP33	1	132	RCVD	NA	RCVD 2/28/1997
TAILPIPE, RH	1128P41500-52	00-109-5766	NOO620-6116-GK65	1	133		NA	RCVD 3/10/1997
TAILPIPE, RH	1128P41500-52	00-109-5766	NOO620-6260-GK02	1	141		NA	RCVD 3/10/1997
TAILPIPE, RH	1128P41500-52	00-109-5766	NOO620-6113-GW57	1	141		NA	RCVD 3/11/1997
ACTUATOR, APC	SLZ9297-1	00-937-5961	NOO620-6267-GN01	1	131		NA	RCVD 4/14/1997
ACTUATOR, APC	SLZ9297-1	00-937-5961	RO9112-6253-GG39	1	134		NA	RCVD 4/14/1997
FLAP SWITCH BOX	D504M5	00-068-1557	NOO620-6124-GK11	1	129		NA	RCVD 4/14/1997
LIGHT, SPECIAL	65-0420-9	00-419-6152	NOO620-6291-GK50	1	129		NA	RCVD 4/14/1997
PRESS, REG, DEFOG	D76C13	00-152-2661	NOO620-6166-GK07	1	129		NA	RCVD 4/14/1997
PRESS, REG, DEFOG	D76C13	00-152-2661	NOO620-6343-GN91	1	131	RCVD	NA	RCVD 4/14/1997
VALVE ASSY,	555123-3	00-021-7145	N00620-6281-GK60	1	129		NA	RCVD 4/14/1997
VALVE ASSY, PANEL	1128AV43026-3	00-431-8788	NOO620-6278-GK28	1	129			RCVD 5-12-97
PRESS. REG. DEFOG	D76C13	00-152-2661	VO9114-6144-G154		M14			RCVD 7098
MLG FWD DOOR, UP, RH	1128B40900-24	00-132-3178	VO9114-5356-G719		M14			RCVD 96337
MLG FWD DOOR, UP, LH	1128B40900-23	00-132-3170	VO9114-7071-G963		M14			RCVD 97097
TAILPIPE, RH	1128P41500-52	00-109-5766	VO9114-5311-G482		M14		R/O 6011-G046	RCVD 97102
MLG FWD DOOR, UP, RH	1128B40900-24	00-132-3178	NOO620-6135-GT03	1	135	CNX	R/O 6263-GT40	RCVD04/24/97
PITOT PROBE	856CD3	00-480-1200	VO9114-5356-G131		M14			RCVD97133
RADOME, NOSE	1128B40005-19	00-332-3935	NOO620-6326-GX98	1	133			RECD 8-26-97
DIFF. PRESS. SENSOR	107406-1-1	00-152-0938	NOO620-6109-GK41	1	129			SHIPPED 01/08/97
DEFOG PANEL	1128AV43097-5	00-140-3492	N00620-6171-GK11	1	129	RCVD	R/O 7133-BK82	SHIPPED 04/20/97
PRESS, REG, DEFOG	D76C13	00-152-2661	NOO620-5318-GK35	1	129	RCVD		SHIPPED 05/13/97
DUCT	1128EC40147-13	01-201-5726	NOO620-6045-GK44	1	129	CNX	R/O 6309-BK75	SHIPPED 12/10/96
CANOPY ACT, AFT	1128N40051-7	00-006-0439	VO9114-6161-G964		M14			SHIPPED 12/13/96
MLG RECYCLE VALVE	1128SCH600-1	00-152-2659	NOO620-6103-GP40	1	132		R/O 7133-BK84	SHIPPED 6156
VALVE ASSY, PNEUMATIC	35980-7	00-152-2556	NOO620-6135-GK14	1	129		R/O 7133-BK86	SHIPPED 6215
WHITE HOUSE ASSY	1128P41505-7	01-145-2528	NOO620-6305-BK71	1	134			SHIPPED 7086
CANOPY ACT , FWD	1128N40050-3	00-237-6082	NOO620-6137-GX22	1	133			SHIPPED 8/7/96
WHITE HOUSE ASSY	1128P41505-7	01-145-2528	NOO620-6094-GS06	1	134	CNX	R/O 6305-BK72	SHIPPED NBZ 6318
WHITE HOUSE ASSY	1128P41505-7	01-145-2528	NOO620-6094-GS07	1	134	CNX	R/O 6305-BK71	SHIPPED NBZ 7086
WHITE HOUSE ASSY	1128P41505-7	01-145-2528	NOO620-6060-GN61	1	131	CNX	R/O 7050-BK53	SHIPPED NBZ 7089
FLAP ASSY, OUTBD, RH	128CS10006-8	00-868-4353	NOO620-6199-GK28	1	129	RCVD		SHIPPED NBZ 7211
DIFF. PRESS. SENSOR	107406-1-1	00-152-0938	NOO620-6292-G936	1		RCVD	R/O 7133-BK88	SHIPPED06/01/97
WHITE HOUSE ASSY	L45600	00-169-0585	NOO620-5348-GS09	1	134	RCVD	R/O 7133-BK87	SHIPPED6184
ACCELEROMETER, TRANS	615794-4	00-984-1028	N00620-7315-GU14	1				
ACCELEROMETER, TRANS	615794-4	00-984-1028	v21847-8112-G899	1	140			
FITTING	128BM10975-1		N00620-8181-BK53	1	VAQ			
MLG FWD DOOR, UP LH	1128B40900-23	00-132-3170	V21847-8095-G889	1				
MLG FWD DOOR, UP R/H	1128B40900-24	00-132-3178	V21847-8095-G890	1	140	RCVD		
MLG FWD DOOR, UP R/H	1128B40900-24	00-132-3178	V21847-8130-G895	1	140			

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NOMEN	P/N	NIN	DOC	QTY	SQD	USER STATUS	USER REMARKS	NADEP STATUS
MLG FWD DOOR, UP, L/H	1128N40900-23	00-132-3170	V03369-8191-GX52	1	ENT			
MLG FWD DOOR, UP, L/H	1128B40900-23	00-132-3170	V03369-8232-GX31	1	VAQ			
MLG FWD DOOR, UP, LH	1128B40900-23	00-132-3170	V03365-6198-G826		Q	SURVIED		
MLG FWD DOOR, UP, LH	1128B40900-23	00-132-3170	N00620-8210-GK58	1	VAQ			
MLG FWD DOOR, UP, RH	1128B40900-24	00-132-3178	NO0620-6267-GN48	1	131	CNX BY CVWP	R/O 7113-GS56	
MLG FWD DOOR, UP, RH	1128B40900-24	00-132-3178	N0620-7344-BK89	1	VAQ			
MLG FWD DOOR, UP,L/H	1128B40900-23	00-132-3170	V09114-7036-G125	1	MAL			
MLG FWD DOOR, UP,LH	1128B40900-23	00-132-3170	N00620-7217-GS91	1	134		R/O 7225-GS67	
MLG FWD DOOR, UP,LH	1128B40900-23	00-132-3170	N00166-8063-G181	1	RES			
MLG FWD DOOR, UP,RH	1128B40900-24	00-132-3178	N00620-8207-GK05	1	VAQ			
NLG DOOR ASSY, LH	128B11410-7	00-921-8539	N00620-7217-GS12	1	134		R/O 7225-GS68	
NLG STRUT	1706A00A	00-465-2370	V03365-8212-G883	1	IKE			
NLG STRUT	1706A00A	00-465-2370	N00620-8239-GT61	1	VAQ			
NLG UPLOCK SHAFT	128L10008-1	00-971-2668	V03369-8196-GX78	1	IKE			
NLG UPLOCK SHAFT	128L10008-1	00-971-2668	N00620-8206-BK59	1	VAQ			
NLG UPLOCK SHAFT	128L10008-1	00-971-2668	N00620-8189-GK59	1	VAQ			
TRIP LINK L/H	1128LM40607-11	00-445-5167	V09114-8195-G912	1	M14	BEING REPAIRED	BY MACHINISTS	
TRIP LINK L/H	1128LM40607-11	00-445-5167	V09114-8195-G914	1	M14	BEING REPAIRED	BY MACHINISTS	
TRIP LINK L/H	1128LM40607-11	00-445-5167	V09114-8195-G920	1	M14	BEING REPAIRED	BY MACHINISTS	
TRIP LINK L/H	1128LM40607-11	00-445-5167	V03369-8193-GX59	1	IKE	BEING REPAIRED	BY MACHINISTS	
TRIP LINK L/H	1128LM40607-11	00-445-5167	V03369-????-????	1	IKE	BEING REPAIRED	BY MACHINISTS	
TRIP LINK R/H	1128LM40607-12	00-445-5168	V09114-8195-G910	1	M14	BEING REPAIRED	BY MACHINISTS	
TRIP LINK R/H	1128LM40607-12	00-445-5168	V09114-8195-G913	1	M14	BEING REPAIRED	BY MACHINISTS	
TRIP LINK R/H	1128LM40607-12	00-445-5168	V09114-8195-G916	1	M14	BEING REPAIRED	BY MACHINISTS	
TRIP LINK R/H	1128LM40607-12	00-445-5168	V03369-8193-GX60	1	IKE	BEING REPAIRED	BY MACHINISTS	
VALVE ASSY	555123-3	00-021-7145	N00620-7294-GC14	1	VAQ			

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